Gas Journal

VOL. 275. 105TH YEAR. LONDON, SEPTEMBER 9, 1953. NO. 4710. PRICE 1/3

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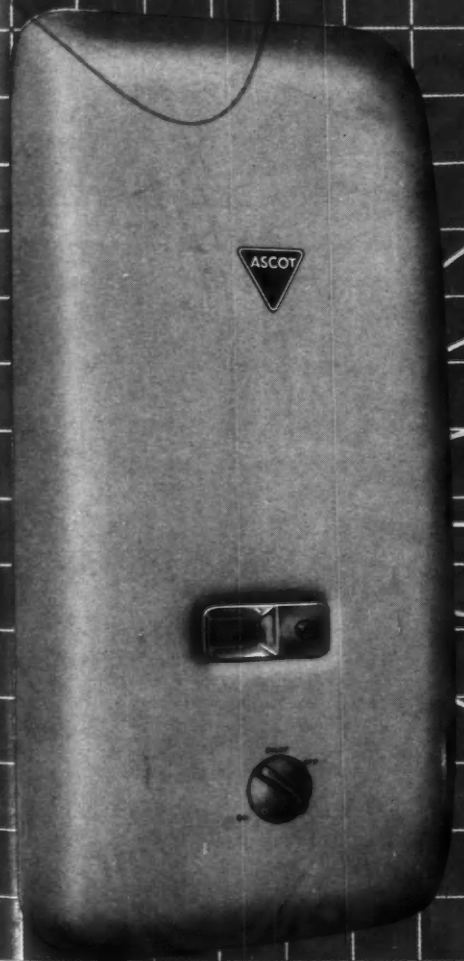
SEP 2 1953
DETROIT

FIRST BALANCED FLUE
GAS WATER HEATER



ASCOT
715
INSTANTANEOUS
MULTIPOINT

Vitiation of air in room impossible. No down draughts.

Compactness: low relief contour projects only 5 inches.

Can be fitted in service ducts or cupboards.

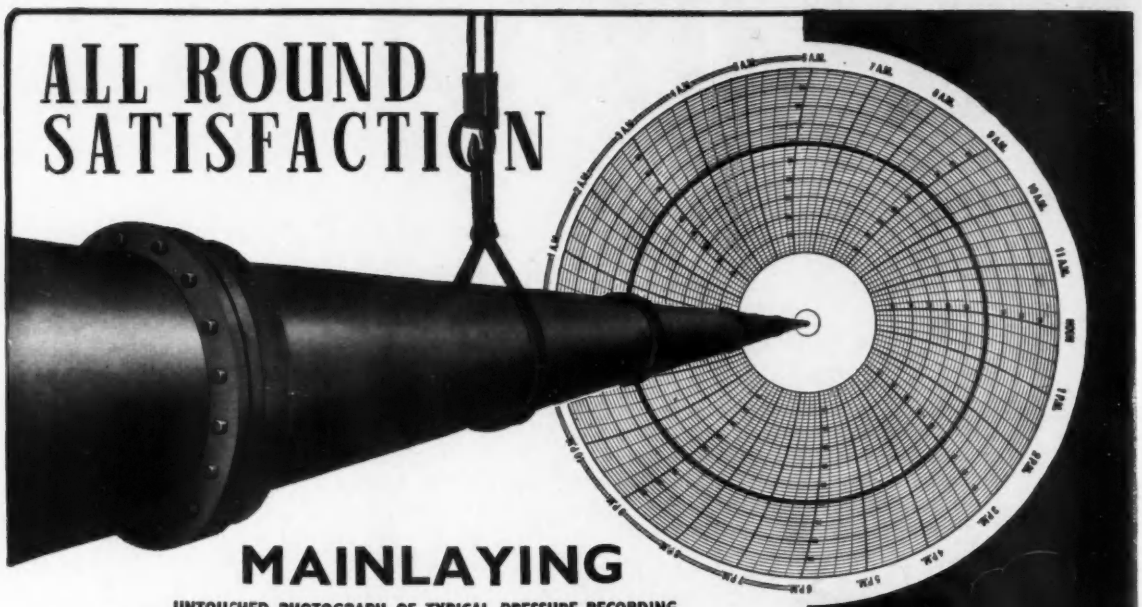
No external flue pipe or cowl: flue ends in flat ventile.

Ventile can be fitted beneath balconies or other projections.

Full multipoint service to baths, basins and sinks.

ASCOT

ALL ROUND SATISFACTION



MAINLAYING

UNTOUCHED PHOTOGRAPH OF TYPICAL PRESSURE RECORDING CHART AS RETURNED FROM ONE OF OUR MANY HIGH PRESSURE MAINLAYING CONTRACTS. CONSISTENTLY GOOD WORK IS A FEATURE OF "U.K." SERVICE TO THE GAS INDUSTRY.

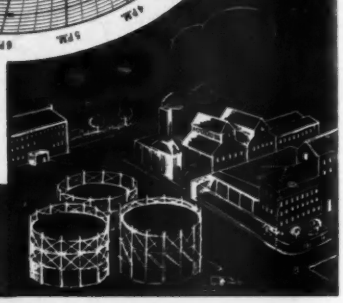


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FIG 999

The LATEST

Low Pressure SERVICE REGULATOR

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PLACE AT YOUR SERVICE SIXTY YEARS EXPERIENCE IN THE MANUFACTURE OF HIGH GRADE GAS CONTROL APPLIANCES

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LEEDS · MANCHESTER
Product of Radiation Ltd

2 MINUTES PER LORRY !

Discharging waste safely over the brink of a 100 ft. deep pit at the rate of 180 tons per hour.

The KANGAROO, Crone & Taylor's latest loader, which comprises as a single unit, ramp, hopper and conveyor, works at a speed that drastically cuts the cost of storing operations.

In 2 minutes it deals with a 6 ton lorry load of waste, in which time the lorry is backed up the ramp, tipped cleanly without spillage, driven off, and its load transferred from the hopper to the pit (or a system of conveyors). 180 tons per hour !

The KANGAROO, which is powered by a diesel engine, is not only quick, it is extremely manageable. Hand-operated hydraulic equipment raises the ramp, and a tow-bar enables the machine to be moved into a new position by any of the lorries that feed its hopper. It is fitted with brakes and can be towed along the highway.

Note the good proportioning and sturdy, rigid construction of the KANGAROO. As the ramp is lowered, the wheels at the feed-end of the conveyor are automatically raised two or three inches above ground level, and are thus freed from all weight and strain during conveying operations.

Full particulars of this revolutionary, fast-operating machine will be sent on request. Please write for leaflet CT. 853

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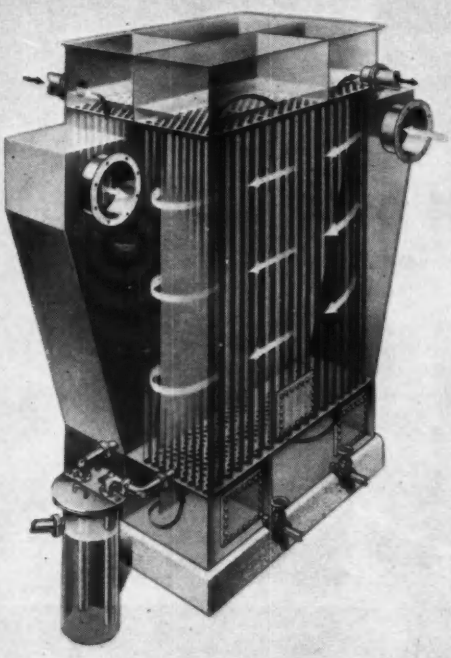
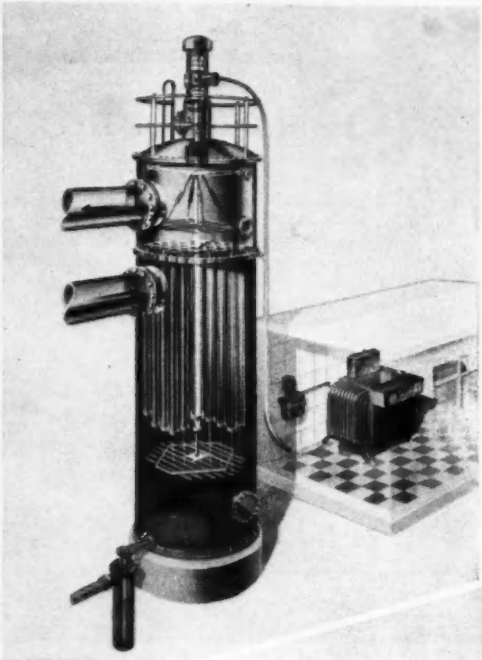
If you are faced by any conveying or storing problem, please consult us. Our advice is freely at your disposal.

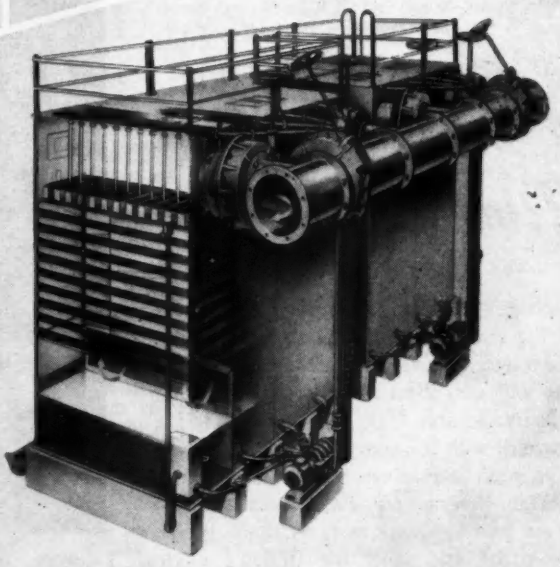
CT 3772

WHESSOE

TREATMENT PLANT FOR THE GAS INDUSTRY







Whessoe design and build COMPLETE ANCILLARY PLANT for the treatment of all fuel gases. Many of these complete purification plants embody CONDENSERS, W.W-D. ELECTRO-DETARRERS and STATIC SCRUBBERS, the features of which are illustrated on this page.

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with equal ease

- Lightweight bench model and portable benders for the plumber.
- Rotary hydraulic benders for gas and steam tube.
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MODEL 51 INDUSTRIAL VACUUM CLEANER

- *Twin motors. Universal AC/DC, 120 watts.*
- *Dust Bag Capacity 1½ Cu. ft.*
- *Weight only 110 lbs.*
- *Quick fitting adaptor instantly converts machine to high velocity blower-hot or cold air.*

Speed, economy and ease of handling are star points with this exceptionally powerful Industrial Vacuum Cleaner. It will rid your factory of money-wasting dust, dirt and swarf —and do it cheaply and quickly.

Light weight, compact design, and pneumatic-tyred wheels ensure effortless "one-man" handling even in confined spaces. The large capacity dust bag can be removed and replaced in a few seconds.

Approved by Factory Inspectors.

Write for Data Sheet 511/50/GJ

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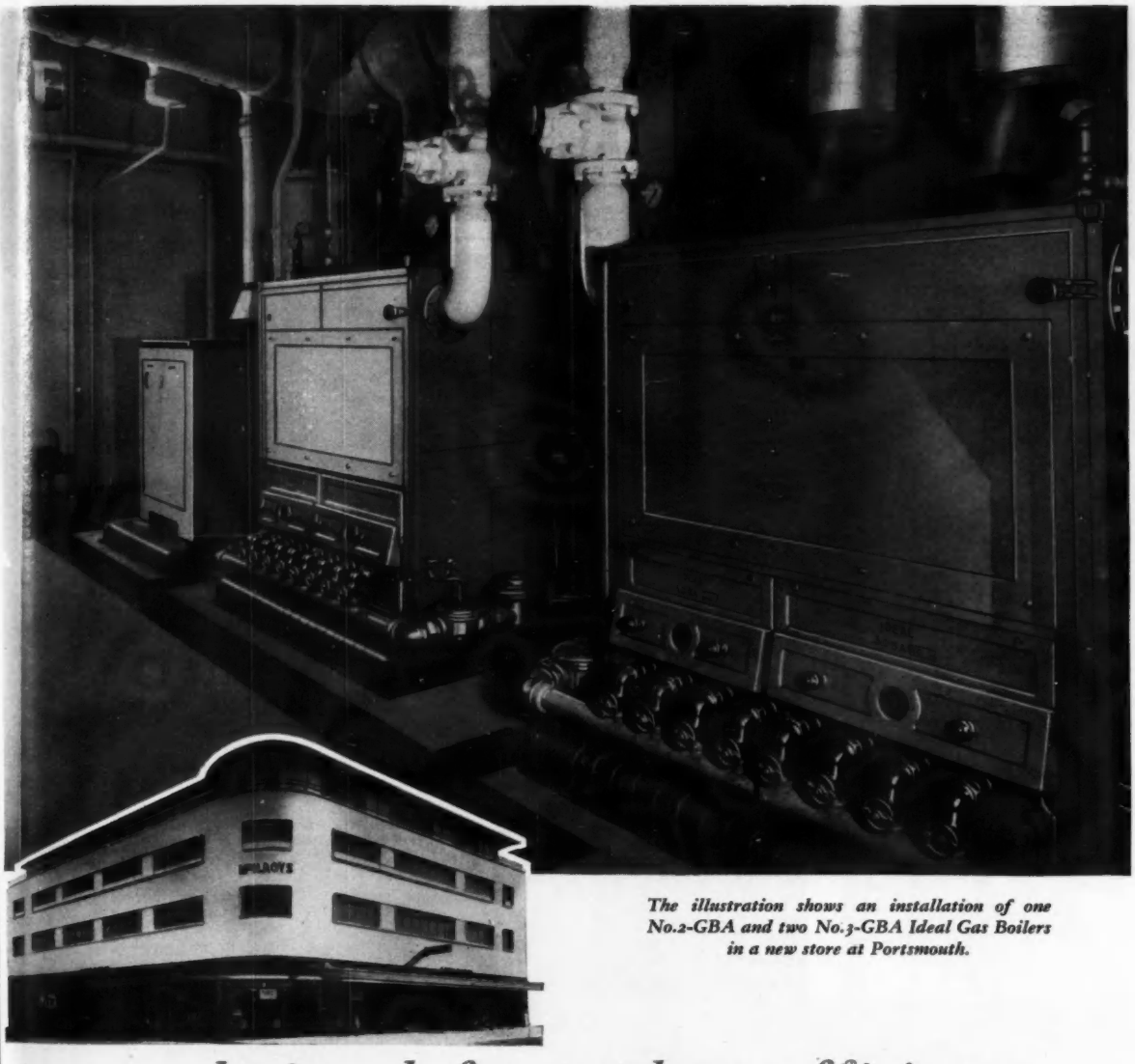
Telephone: Mansion House 5700 Telegrams: "Yutaka Cannon, London"



The illustration shows an installation of one No.2-GBA and two No.3-GBA Ideal Gas Boilers in a new store at Portsmouth.

. . . designed for modern efficiency

High functional efficiency, clean, labour-saving operation and long, trouble-free service are the features which have created such a demand for the installation of Ideal Gas Boilers in reconstruction and new building throughout the country.

These boilers comply with the wishes of the Ministry of Town and Country Planning, and many local authorities, who encourage the installation of smoke-less heating equipment in the interests of a clean, healthy atmosphere, now ardently desired by all.

In a range of 22 sizes, from 20,000 to 1,430,000 B.T.U. per hour, Ideal Gas Boilers are completely thermostatically controlled and have insulated jackets of steel or aluminium in appropriate finishes. They are the result of long experience and much research in this specialised type of heating and their growing popularity is a measure of their success.

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RELIABLE AND LABOUR SAVING

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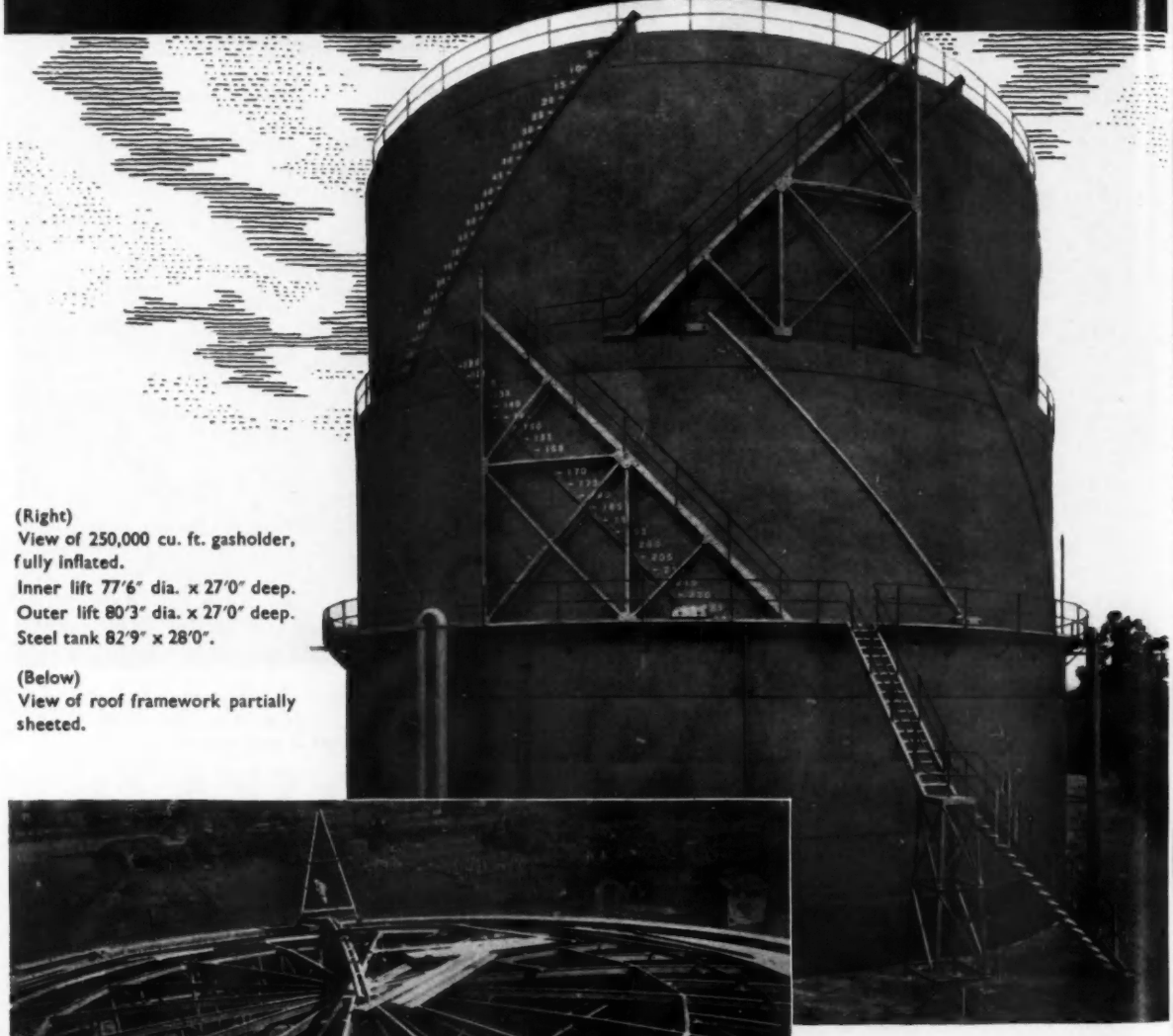
IDEAL-Standard

Visit our Stand No. 310 Row Q, National Hall, at the Building Exhibition, Olympia

241

OXLEY

ALL-WELDED GASHOLDERS



(Right)
View of 250,000 cu. ft. gasholder, fully inflated.
Inner lift 77'6" dia. x 27'0" deep.
Outer lift 80'3" dia. x 27'0" deep.
Steel tank 82'9" x 28'0".

(Below)
View of roof framework partially sheeted.

Oxley specialise in the fabrication and erection of all-welded gasholders and can meet all your construction and repair problems.

OXLEY ENGINEERING CO. LTD., HUNSLET, LEEDS 10

Telephone: Leeds 32521
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London Office: WINCHESTER HOUSE, OLD BROAD STREET, E.C.2.
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5

Electrolux Gas Refrigerators backed by a

5

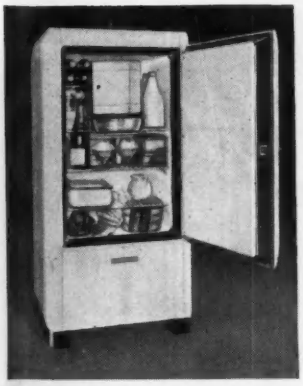
Year Guarantee

on the

Silent Cooling Unit

L.150 £54.18.10 (*tax paid*)
Free standing cabinet of modern design. Internal volume : 1½ cubic feet. Shelf area: 3½ square feet.

L.H.150 £57.17.4 (*tax paid*)
A new model with table top and drawer. Internal volume: 1½ cubic feet. Shelf area: 3½ square feet.



L.450 £108.16.11 (*tax paid*)
An 'extra' size refrigerator with four removable shelves. Internal volume: 4.6 cubic feet. Shelf area: 8.4 square feet.

L.700 £143.5.10 (*tax paid*)
A handsome cabinet for all installations where generous capacity is required. Internal volume : 7 cubic feet. Shelf area : 12½ square feet.

L.300 £82.6.5 (*tax paid*)
Family size refrigerator. Internal volume : 3 cubic feet. Shelf area : 5.8 square feet.

THE FLAME THAT FREEZES

Electrolux *Excels* in proved reliability

ELECTROLUX LTD · 153/5 REGENT STREET · LONDON · W.1. WORKS : LUTON · BEDFORDSHIRE

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DRIVEN BY
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WITH
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LININGS, SPLASH BACKS AND TRAYS
reduce the cost of cooker maintenance
Made only by

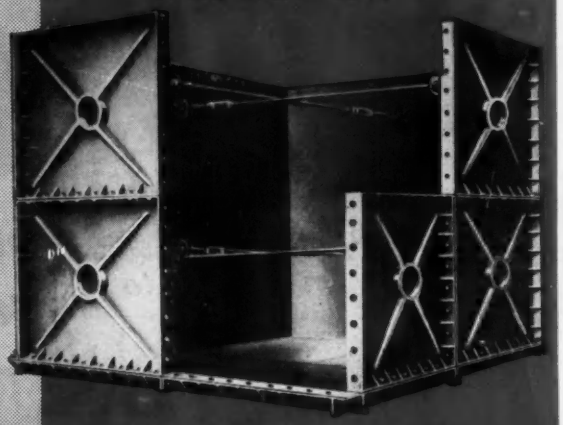
NATIONAL ENAMELS LTD
53 NORMAN ROAD GREENWICH. S. E. 10
TELEPHONE:-
GREENWICH 2266 & 2429

STANDARD CAST IRON SECTIONAL TANKS

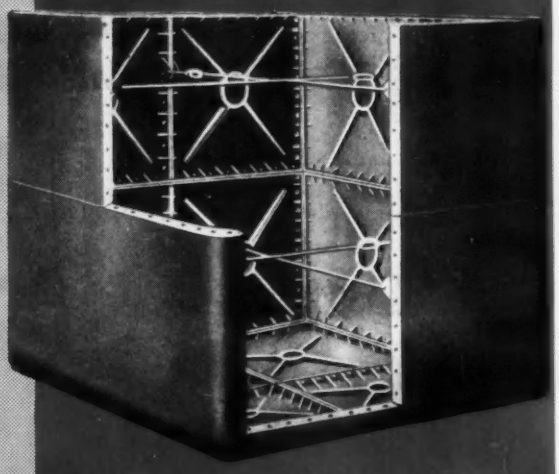
We are large makers of cast iron tanks in accordance with B.S.S. 1563 1949 (Heavy plate type).

Please ask for our illustrated brochure.

Standard cast iron tank with external flanges (for capacities see table)



Standard cast iron tank with internal flanges



CAPACITIES OF EXTERNAL FLANGED TANKS MADE FROM STANDARD SQUARE 4 FEET PLATES

TANK SIZE	DEPTH 4 FEET		DEPTH 8 FEET	
Length by breadth	Approx. total weight empty	Nominal capacity	Approx. total weight empty	Nominal capacity
Feet	cwt.	gal.	cwt.	gal.
8× 4	39	700	67	1500
8× 8	58	1400	96	3000
12× 8	77	2100	127	4500
16× 8	96	2800	153	6000
20× 8	115	3500	182	7500
24× 8	134	4200	211	9000
28× 8	153	4900	240	10500
12×12	103	3150	157	6750
16×12	124	4200	190	9000
20×12	147	5250	224	11250
24×12	172	6300	257	13500
28×12	195	7350	290	15750
32×12	219	8400	324	18000
16×16	152	5600	228	12000
20×16	181	7000	266	15000
24×16	210	8400	304	18000
28×16	237	9800	342	21000
32×16	266	11200	380	24000
36×16	295	12600	418	27000
20×20	212	8750	307	18750
24×20	246	10500	350	22500
28×20	278	12250	391	26250
32×20	311	14000	435	30000
36×20	344	15750	476	33750
40×20	377	17500	518	37500
24×24	283	12600	396	27000
28×24	321	14700	443	31500
32×24	358	16800	491	36000
36×24	397	18900	538	40500
28×28	363	17100	495	36700
32×28	405	19600	546	42000
36×28	448	22100	598	47200
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Roots Type

Capacities up to One Million cubic feet per hour

GEORGE **WALLER** AND SON LTD

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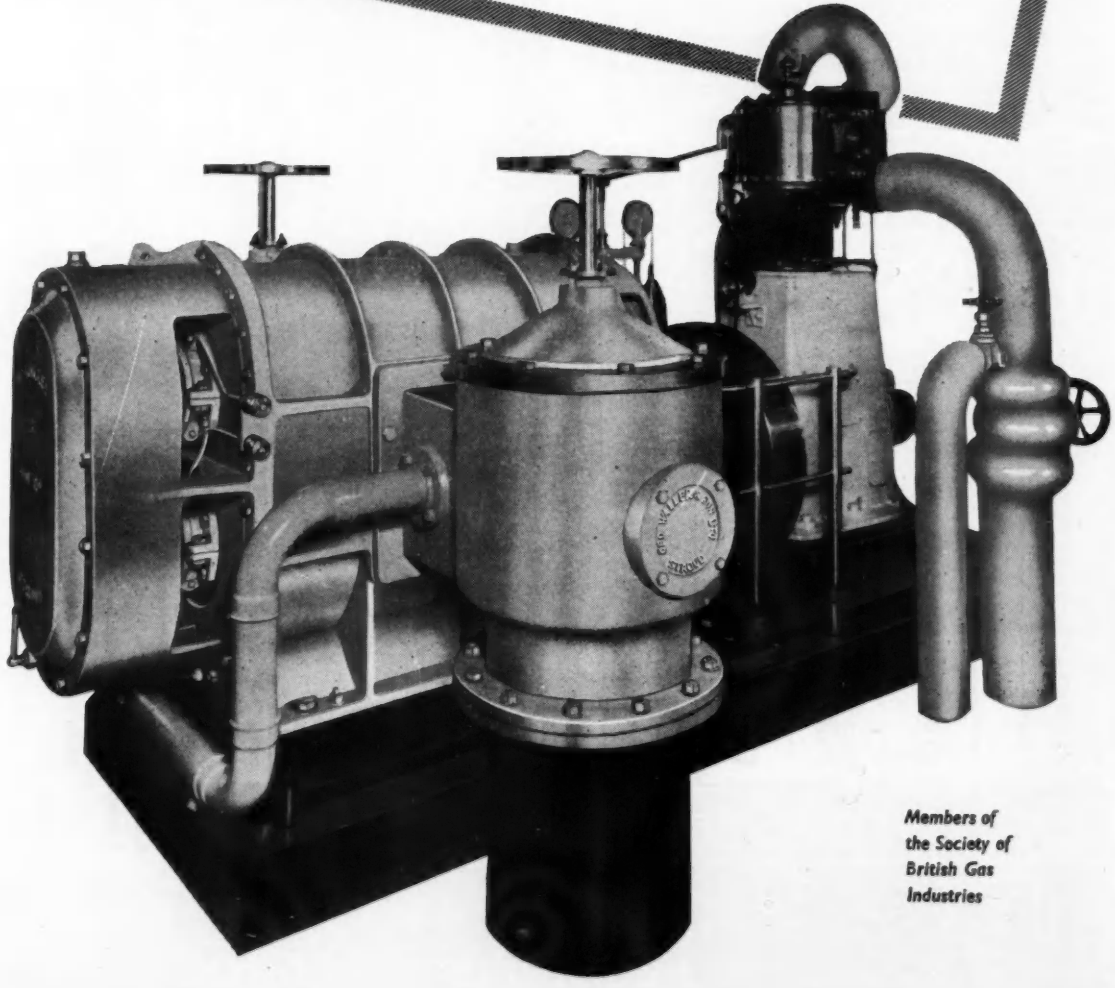
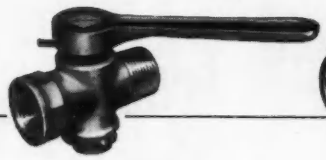


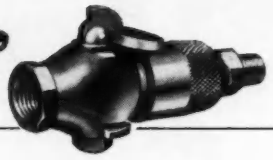
Members of the Society of British Gas Industries

18409

BRASSWORK



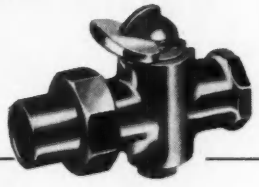
M & F Main Cock with Iron Key.



"Simflex" Drop Lever Cock with plug in Connector

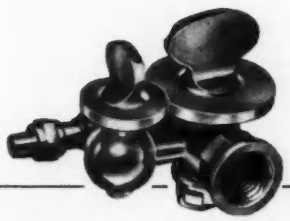
9044 SE Plug in Cock and Connector (Rubber Sleeve Joint)

EXCLUSIVE



Union Cock with drop lever.

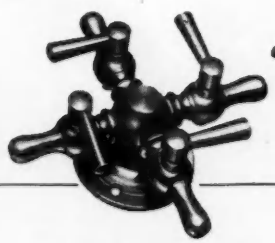
Gas Fire Cock with loose key, flanged for floor fixing.



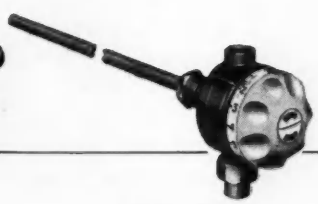
Main and Bye-pass Interlocking Cock. for use on large-scale Catering equipment.

QUALITY

Constant Pressure Governor spring loaded for horizontal or vertical use



4 Way Laboratory Bench Cock, for Laboratory use.



Cooker Thermostat White plastic head with figures marked in black.

QUANTITY

These illustrations are typical of the wide range of fittings manufactured in bulk for leading industries at home and overseas. They embody the highest standards of design, workmanship, material and finish.

We invite your enquiries.

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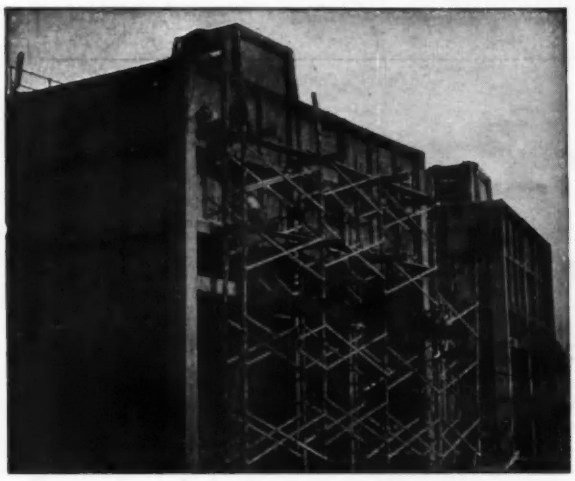
SUGG WESTMINSTER

Gunite



One of the reinforced concrete structures reconditioned with Gunite for the City of Carlisle Gas Undertaking.

Gunite—concrete applied by air pressure—has numerous applications where its great density and extreme adhesion have exceptional value.

For repairing reinforced concrete it has particular merit, as, due to the method of application, a uniform density and adherence is obtained whenever Gunite is applied.

For lining coal bunkers and steel chimneys it possesses great resistance to corrosion and protects steel-work from the abrasive action of coal or coke.

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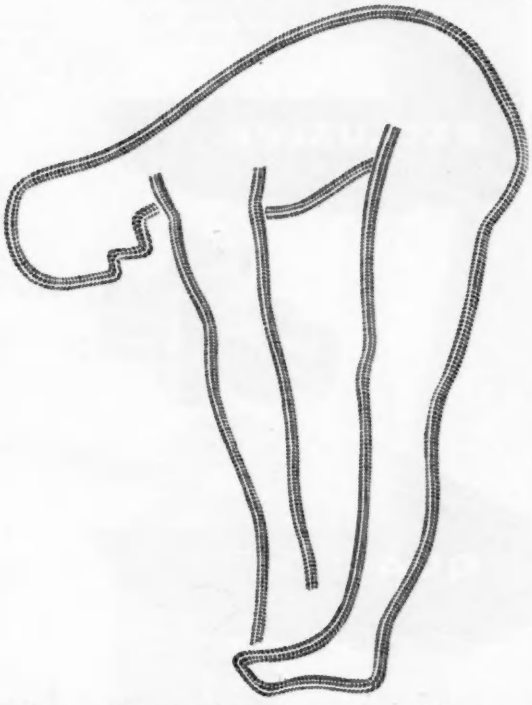
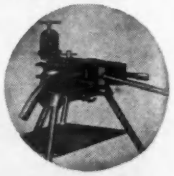
... our bent is tube bending equipment



WE specialise in the design and manufacture of machines for tube bending. These machines are particularly suited for use with steam and gas tubing — copper tubing — electricians' conduits — light gauge solid drawn brass tubing — aluminium tubing — light gauge steel tubing and many other types up to 3" in diameter. With these there is also a unique bending unit designed to facilitate the bending of ½" to 2" steam gas tubes through 180°. Full service facilities are available and we will design special machines for any kind of job.



Enquiries should be made through your machine tool distributor or direct to:

Tubela

Tubela Engineering Co. Ltd.
6 Furze Street, Bow, London, E.3
Telephone East 4771 (3 lines)

Even in those days—

PIPES CARRIED THE GAS

to public and domestic fittings upon which the full force of the Victorian metal workers' art had been lavished. From those early days of the "new gas light" right up to the present moment Staveley pipes have maintained their leadership in serving the gas, water and sewage disposal requirements of communities at home and abroad.

THE STAVELEY IRON & CHEMICAL CO. LTD. NR. CHESTERFIELD

DOUGLAS builds *from first to last*

This photograph shows part of the impressive Administration Block comprising laboratory, staff canteens, locker rooms and medical wing, recently constructed for a major national industrial undertaking.

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Bridge Road, Waunarlwydd, Swansea.
London Office: 47, Victoria St., S.W.1.
Architects: Sir Percy Thomas & Son

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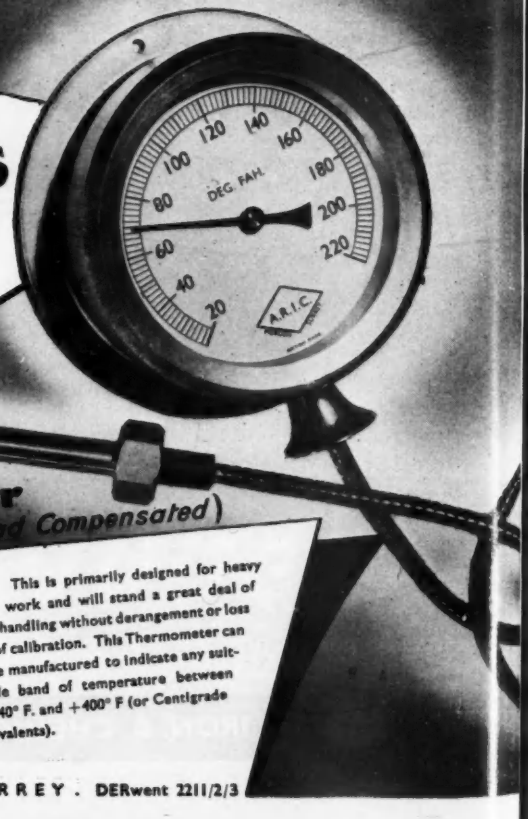
It must be accurate...It is ACCURATE



Thermometer (Head Compensated)

This is primarily designed for heavy work and will stand a great deal of handling without derangement or loss of calibration. This Thermometer can be manufactured to indicate any suitable band of temperature between —240° F. and +400° F (or Centigrade equivalents).

The ACCURATE RECORDING INSTRUMENT Co (ARIC LTD)

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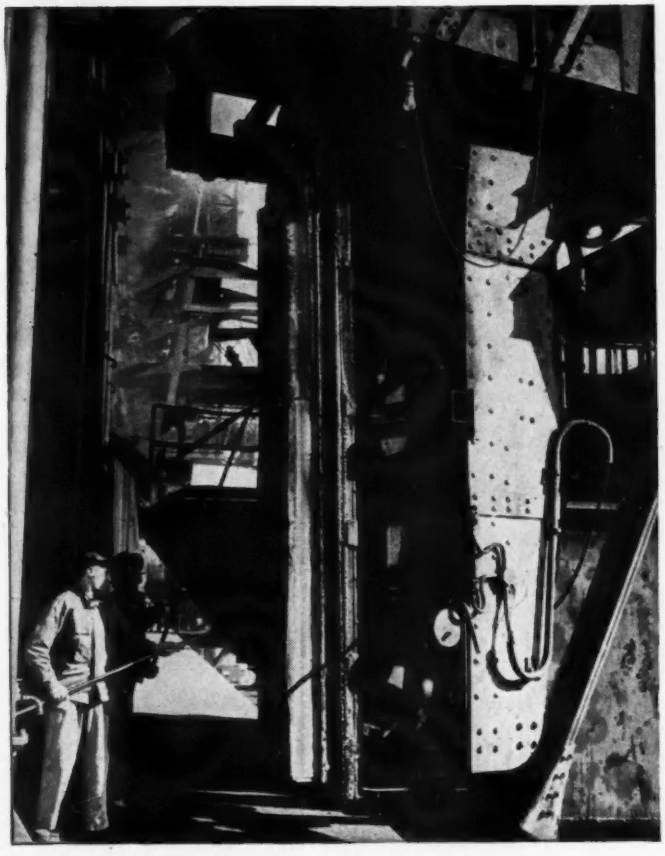

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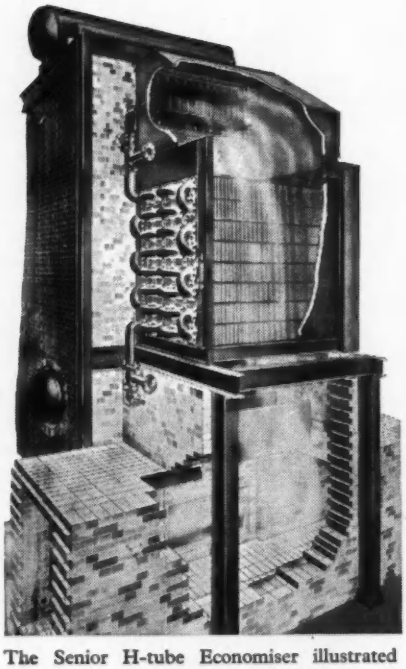

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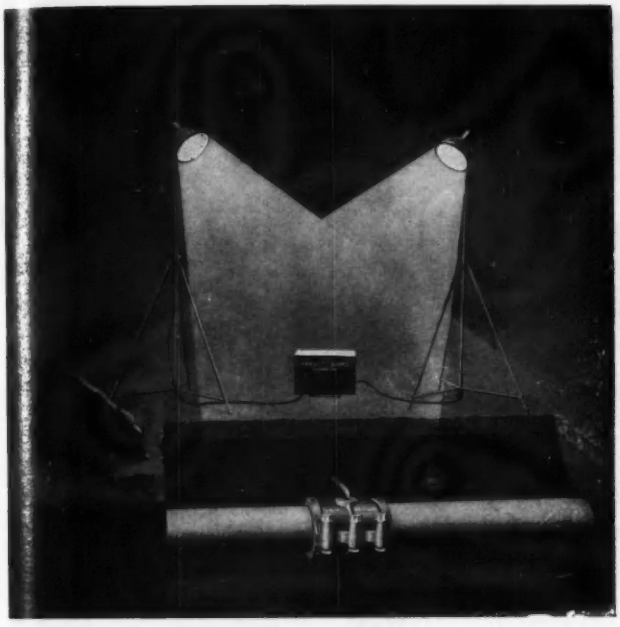

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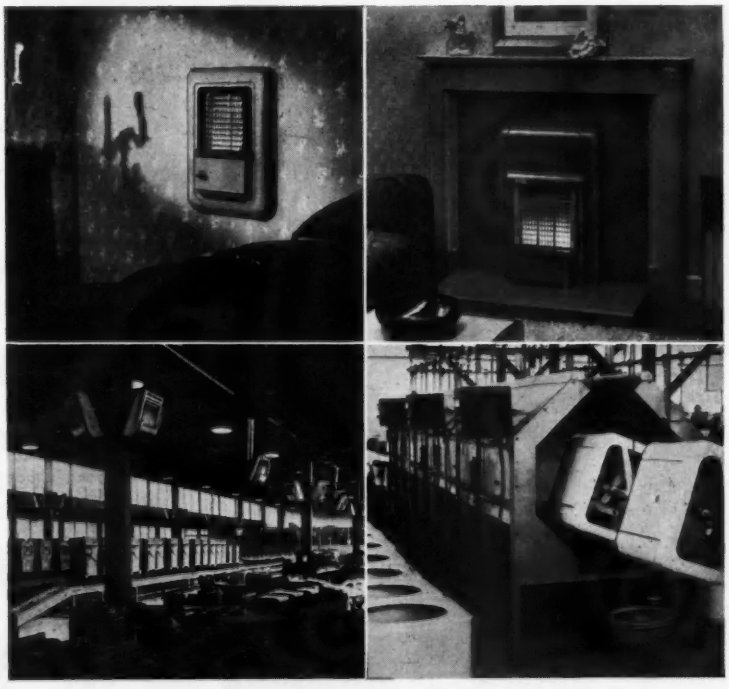

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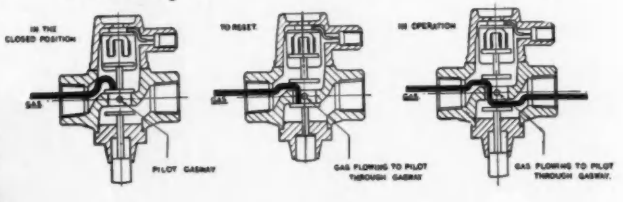

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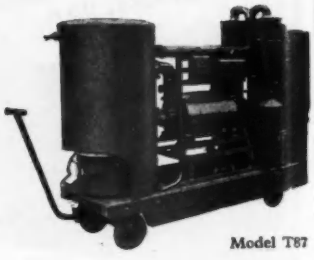

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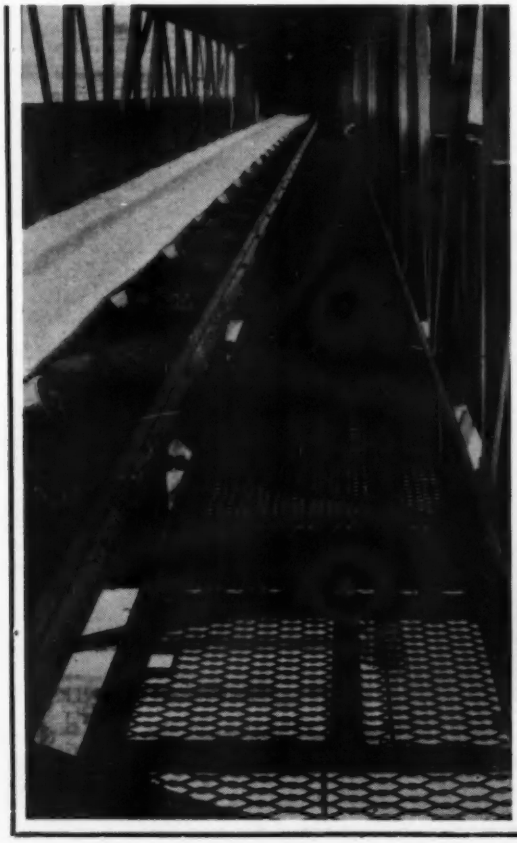

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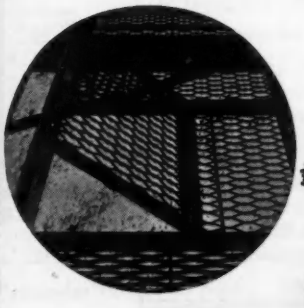

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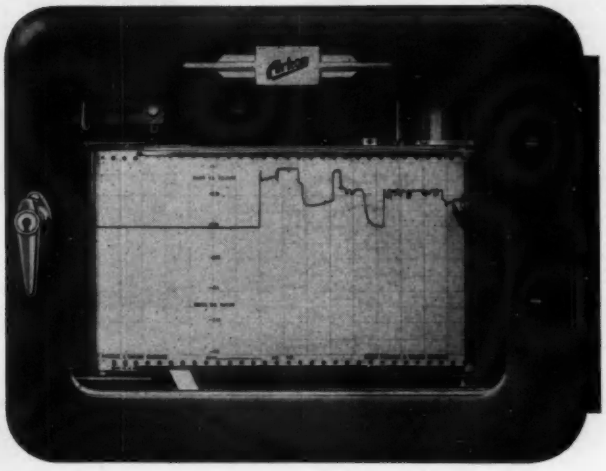

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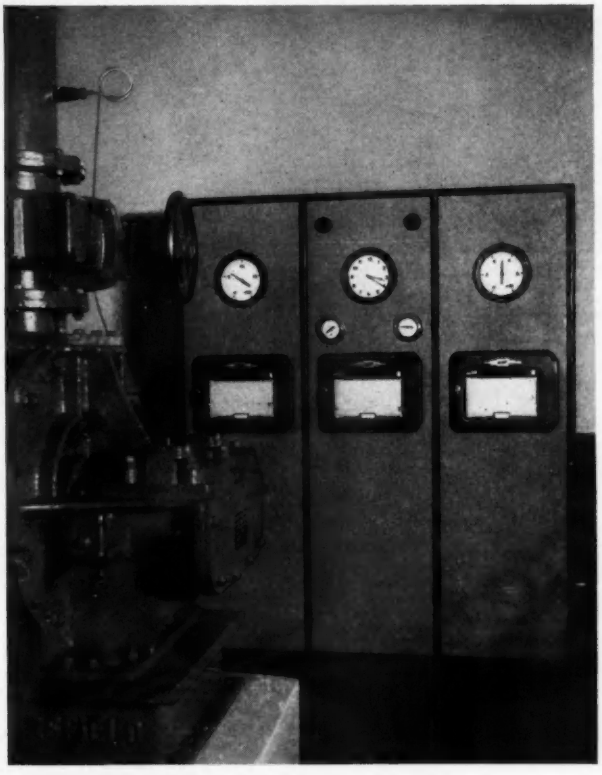

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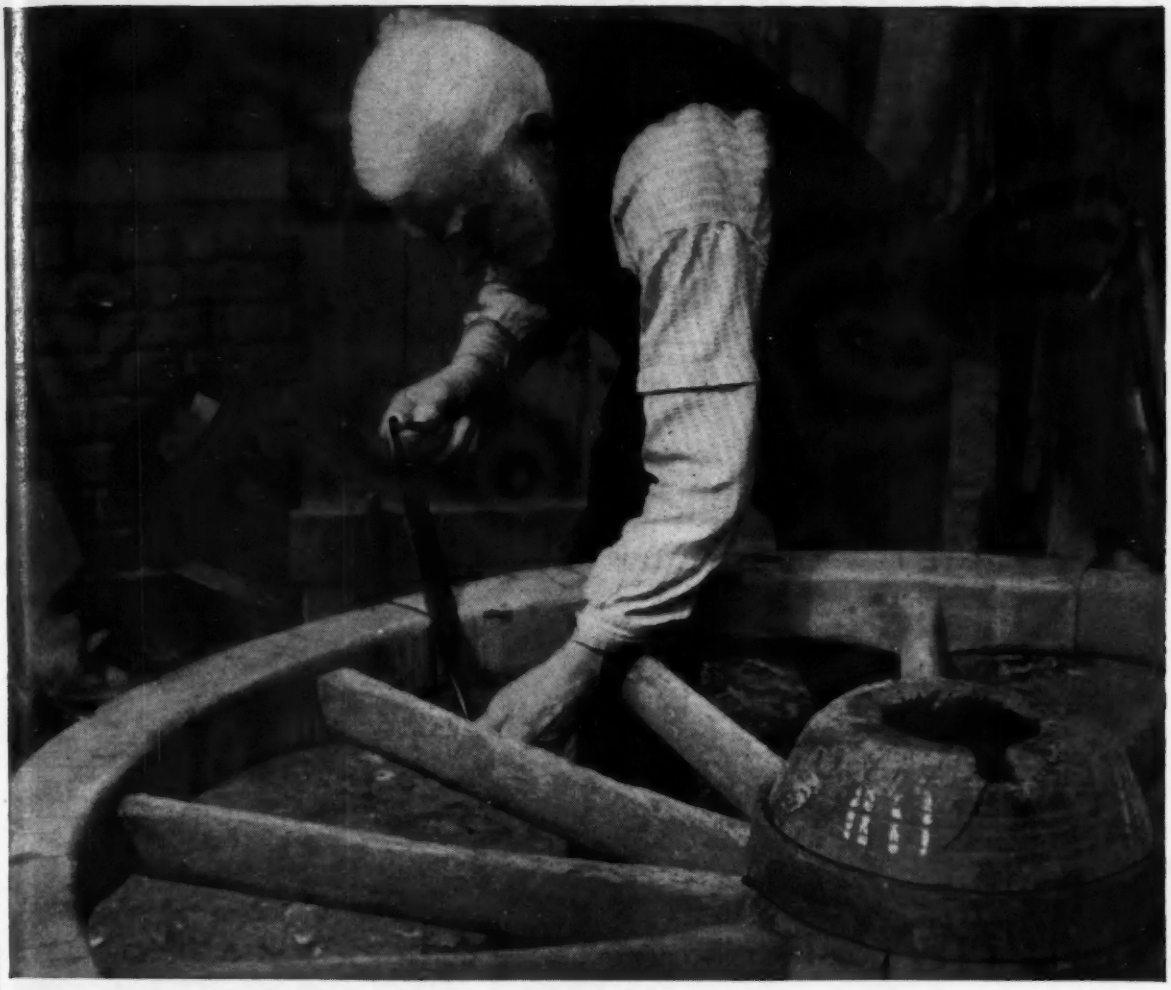

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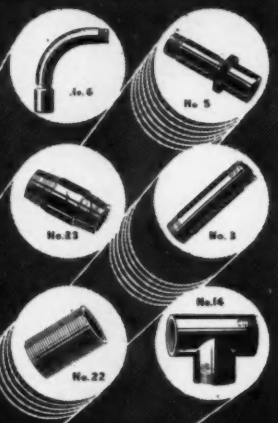

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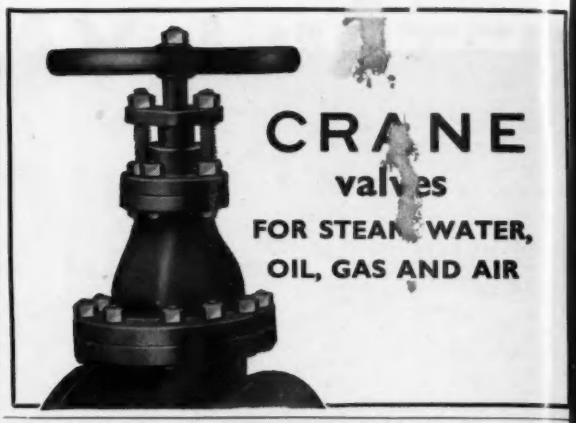

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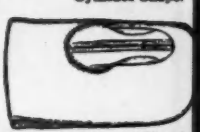

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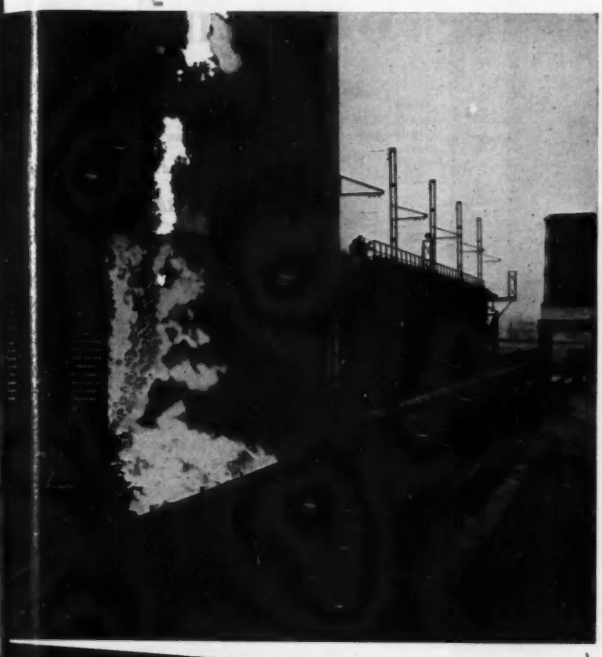

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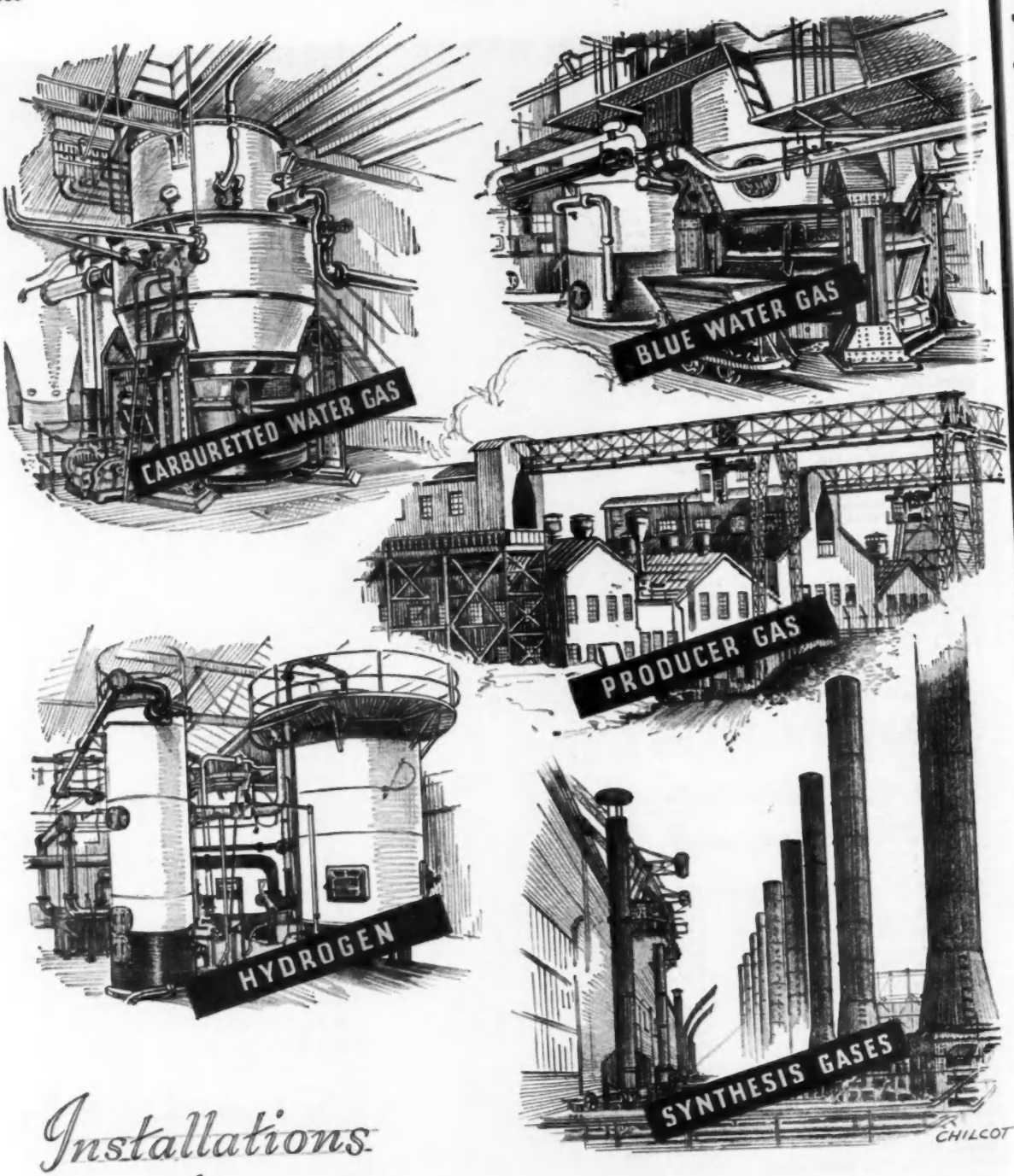

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Gas Journal

105th YEAR OF PUBLICATION

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GAS JOURNAL

VOL. 275. No. 4710 105TH YEAR September 9, 1953

FUEL POLICY: RETROSPECT AND PROSPECT

Occasionally it is salutary, though all too often disappointing, to take a glance backwards in an endeavour to evaluate the progress achieved by the gas industry. We are induced to do so now following the publication of the report of the British Specialist Team on Conservation of Fuel, Heat, and Energy. This Team was appointed in 1952 under the leadership of Mr. W. L. Boon, Director of the Fuel Utilisation Division, Powell Duffryn Technical Services, Ltd., and its report, which contains many recommendations on general fuel policy, is based on a visit made to the United States of America under the auspices of the Anglo-American Council on Productivity. We give abstracts from the report on later pages of this issue of the *Journal* and we shall refer to the recommendations later in this comment. Let us for the moment, however, reflect on what has happened to the gas industry and the influences which have been brought to bear on it, both from within and from outside, during the past very eventful decade.

It is just 10 years since the then British Gas Federation published its 'Report on the Planning of the Gas Industry'—a report, submitted to the Minister of Fuel and Power, which strongly deprecated nationalisation but emphasised the very great need for regionalisation and integration of gas undertakings and, indeed, of the gas industry as a whole, the keynote being 'rationalisation.' 'The paramount consideration'—we quote from the report—'is that the fuel user should be able to obtain the service most suitable and acceptable for his purpose, consistent with the proper utilisation of the nation's fuel resources.' And to this end the Federation recommended the establishment of a National Fuel Advisory Council, representative of the fuel industries and of the Ministry of Fuel and Power. It was envisaged that the functions of such a body would be not to destroy but to regulate competition, to check abuses, and to stimulate improvements. Emphasis was laid, too, on the imperative need for the reduction of smoke, a problem which concerns all health and housing authorities and calls for the use of smokeless fuels, gas and coke; and in the report great expansion of the gas industry was anticipated in the interests of national economy and welfare. At the same time it was pointed out that the industry could not remain satisfied or frame its future policy while, for example, pressures at users' premises were liable to wide fluctuations or while the sulphur content of the gas exceeded reasonable limits.

During the previous year the Committees of Enquiry into Coke Quality, Gas Quality, and Sulphur Removal, appointed by the Institution of Gas Engineers, had reported their findings and submitted their recommendations. At this stage we need not go into detail regarding these, but we would recall the two outstanding recommendations of the Committee on Sulphur Removal—that as a first step the organic sulphur compounds in all supplies of town gas should be reduced to 10 grains per 100 cu.ft. before the gas was distributed to the public and that immediate steps should be taken by all gas undertakings to achieve this result; and, secondly, that gas undertakings should be encouraged to make better use of the facilities then available to enable them to attain the lower limit of 3 grains per cu.ft. That was more than 10 years ago, and we seem to have done nothing about it. The whole matter is bewildering, for with a gas virtually free from sulphur we have an enormous amount to gain. When we consider for a moment the cost of maintenance of apparatus—domestic and large scale—directly due to a sulphur-laden gas, the fact that for certain industrial processes a low-sulphur gas is essential, the limitations set on its use for space heating, and the prejudicial influence of sulphur-laden gas on the prestige of the industry, the industry's inaction is truly astonishing.

However, to return to the broad picture over the past decade, the 'evolutionary' Report of the British Gas Federation was followed in 1945 by Command Paper No. 6699, being the report of the Committee of Enquiry into the Gas Industry which was appointed during the previous year by Major Lloyd George, then Minister of Fuel and Power, under the chairmanship of Mr. (now Sir) Geoffrey Heyworth. The report, which advocated nationalisation of the industry, fortified the Socialist Government of the day; and we would recall that here again, among the many recommendations of the Heyworth Committee was that gas supply should contain not more than 10 grains of sulphur per 100 cu.ft. Then, in 1946, came the Report by the Fuel

and Power Advisory Council on Domestic Fuel Policy (the Simon Report), which urged that it should be the target of a national domestic fuel policy to secure that the 50 mill. tons of bituminous coal burnt with a working efficiency of 20% should be replaced by 1966 by smokeless solid fuel, or by bituminous coal burnt smokelessly, or by gas, or by electricity, with an average coal economy efficiency of not less than 40%. It was put forward that this would render possible the virtual abolition of domestic smoke and either doubling the useful heat in the smaller houses at little or no greater cost to the householder and no increase in the consumption of coal, or an increase of 50% in the useful heat in the smaller houses with a substantial reduction in cost to the householder and a saving to the nation of perhaps 10 mill. tons of coal per annum. The report as a whole made it clear that in 1946 the capacity of the carbonising industries was totally inadequate.

FURTHER PLANNING—AND ACTION

In November, 1947, Colonel W. M. Carr produced a 'National Fuel Plan' which he submitted to the Prime Minister at that time. This was a bold plan which was aimed at a development to take place by 1957 to make 200 mill. tons of coal do the work of 250 mill. tons. It called for an expansion of the coal carbonising industry to four times its size of 1947. What Colonel Carr asked for was that ideas of petty yearly increases in gas and coke output should be replaced by a powerful drive, appropriately supported financially, to effect expansion on the large scale. In July of the same year the British Gas Council had submitted to the Ministry of Fuel and Power a statement of broad policy regarding the planning of the gas industry. The B.G.C. report envisaged 13 Regional Boards with, at national level, a National Gas Board; and the report was submitted without prejudice to the freedom of the B.G.C. to oppose the principle of nationalisation. But nationalisation was in the air, and in fact the intention of the Government was made manifest in October, 1947. The gas nationalisation issue came down from the clouds and became one of major practical politics. The year 1947 passed and the Gas Nationalisation Bill was introduced formally in January of 1948. The industry has worked under nationalisation since 1949. We have recorded the relevant steps during the past decade, but the full story could be extended back to the Samuel Commission of 1925, strongly advocating the co-ordination of coal, gas, electricity, coke, and chemical products, and the plea of Sir Philip Dawson in 1937 that the fuel industries should have a central body—the Government. In the outcome compulsion, State-ownership, was the answer. It is to be queried, however, whether nationalisation has fulfilled the hopes of former planners within the industry since the planning wave started in earnest 10 years ago—whether, in fact, the industry knows what it wants after nearly five years of nationalisation, whether it has presented its case with sufficient clarity, persistency, and strength.

The important conference staged by the Combustion Engineering Association in October, 1951, which was opened by the Minister of Fuel and Power (at that time Mr. Philip Noel-Baker) is still fresh in our mind. It was in the nature of a 'crisis conference' and it was addressed by people who occupied positions of high authority. The battle, it may be recalled, was for the most part pitched on the shortcomings of the British Electricity Authority in its prodigality and carelessness in building-up a heating load for which electricity is not fitted and which imposes unnecessary hardship on industry and gross waste of capital, coal, and industrial productivity. At the conference there was a call for a resolution that steps should be taken to ensure that the use of electricity for heating should not be encouraged heedlessly. At the time the Committee on National Policy for the Use of Fuel and Power Resources—the Ridley Committee—was deliberating, and its report saw the light of day in September, 1952. It was a voluminous report and came as something of a blow to those who contemplated that the Committee would recommend the setting-up of an over-riding authority to co-ordinate the activities of the N.C.B., the B.E.A., and the gas industry. No such over-riding authority was recommended. It was argued that there should be 'freedom of choice' and that the gas and electricity, acting in competition 'within a framework' should sort out their own difficulties and settle their respective claims to be good and honest providers of thermal energy in the national interest. The Committee insisted that the prices at which different types of fuel and power are offered should reflect the real cost of providing them. In its memorandum to the Committee the Gas Council contended that it would be in the interest of the better use of fuel if it were to increase the amount of coal which it carbonises annually to double the present quantity. At the same time it pointed out that the industry was concerned that development should be balanced as between the various types of load for which gas and coke respectively are used, adding that the industry was not deluded by the rapid increase in gas output over the past few years into believing that the rate of increase can be maintained indefinitely. In point of fact, from 1943 to 1950 the output of the gas industry increased by more than 40%. The industry has based its plans for development at a rate which would lead to a doubling of the industry by 1976, which appears to us a timorous policy.

A CALL FOR CO-ORDINATION

We return to the Report of the Specialist Team on Conservation of Heat, Fuel, and Energy issued last week. The Team calls for a halt in the present 'unheedful drift' in the use of our coal resources, maintaining that it would be unwise to assume that any other form of energy will make a material contribution to the country's needs by replacing coal within, say, 30 years. As things stand, 'our general standard of fuel utilisation is perhaps the lowest of any industrial country in Europe.' It is maintained that the nationalised fuel industries are the focal point of improved fuel utilisation, and that by taking control of the production of coal, gas, and electricity the State has accepted responsibility for the fuel services. It cannot therefore stand aside and permit waste or improper use of these fuels to continue. Regarding short-term policy the Team poses several vexed questions. Is it in the national interest that electricity should be used for space heating except where gas is not available? Is it not essential, in view of indus-

try's future needs for power, that the functions of electricity be confined to the provision of power, light, and certain specialised heat processes? Is not gas the right fuel to retain on tap for intermittent space heating? Seeing that the base load of space heating can only be carried by solid fuel, is it not in the country's best interests that smokeless fuels be used, particularly in the domestic sphere?

The Team goes on to say that the present competition between gas and electricity for new housing services is the reverse of healthy from the national point of view, and that there can be no real freedom of choice for the consumer where fuel shortages and controls persist and where prices are not in equilibrium with true costs. And, notwithstanding the Ridley Report, 'competition and freedom of choice are, in such cases, false gods. They should be buried and replaced by co-ordination and a national fuel policy.' Then comes a further question: 'Is it for the good of our coal, gas, and electricity industries, or is it sound sense from a national point of view, that these industries should remain under the influence of party politics?' And, among the 40 recommendations set out in the report, are that the Government should make an early declaration on the broad policy it intends to follow in regard to fuel and power and that it should enact legislation to create a permanent and non-political Fuel and Power Board to undertake the direction of the three nationalised industries.

FACILITIES FOR TECHNICAL EDUCATION

The report by the Select Committee on Estimates on Technical Education is frankly critical of the rate of progress in providing facilities for students. In 1949 it was estimated that a building programme of £50 mill. was needed to provide the country with minimum technical education facilities, and now 50% has to be added to this figure to cover increased costs. The present programme, however, represents an annual consumption of only £1.5 mill. This deplorable slowness in providing for technical education is likely to have a backwash in a short number of years, in the gas industry as in others. It is not conducive to the production of qualified personnel, for instance, for students at a Midlands technical college to be taught 'in the corridors,' and even 'under the platform of one of the lecture theatres.' Such Bohemianism might mean getting down to it for corduroyed art students; for the technical class it is, in the latter case, merely getting under it. We only hope that the two new colleges about to be opened in that area will relieve the congestion before the Professor of Concrete Technology, with all his weighty words, crashes on the heads of students of domestic utilisation of gas.

INDUSTRIAL INJURIES INSURANCE

The National Insurance (Industrial Injuries) Act, 1953, which came into operation on August 26, makes a number of changes in the scheme of insurance against industrial injuries, although the main structure of the scheme remains unaltered, and there is no increase in contributions. The major change is a relaxation of the conditions for disablement benefit. At present benefit can only be paid if the disablement resulting from the accident or industrial disease is substantial, that is, assessed by a medical board at 20% or more, or likely to be permanent or in some circumstances both substantial and permanent.

Now, however, benefit will be paid wherever the disablement is assessed at 1% or more, whether it is permanent or not. Employees who have already had claims rejected because their disablement was neither permanent nor substantial may now claim benefit if there is still some disablement remaining. Applications should be made to local National Insurance Offices. The Act also makes the following changes: (1) hospital treatment allowance becomes available to people awarded disablement gratuities, as well as to disabled pensioners; (2) industrial death benefit to be paid at the rate of 37s. a week instead of 20s. a week to certain widows whose husbands died as a result of an industrial accident, and who are aged between 40 and 50, when they cease to be entitled to an allowance for a child: and to make dependents' allowances available to certain unemployable people who have been receiving workmen's compensation for injuries sustained before the Industrial Injuries Act came into force in 1948.

Oh Crumbs!

In the improbable event of the *Journal* having to resort to high-pressure advertising to maintain its circulation it is unlikely that we shall enlist the aid of the copywriter who created this gem to launch a new publication for circulation among the English-speaking residents of Bangkok.

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Oh crumbs!

SIR JOHN MAUD, K.C.B., C.B.E., *Secretary of the Ministry of Fuel and Power, in the company of* MR. W. K. HUTCHISON, *Chairman of the South Eastern Gas Board, paid a visit on August 27 to the m.v. 'Mitcham' one of the 11 up-river colliers in the fleet of 16 ships owned and managed by the Board.*

Sir John Maud joined the 'Mitcham' at West India Dock Buoys and made the journey through the 17 bridges to Wandsworth. The ship was inspected by Sir John, who showed keen interest in the engine room and the modern aids to navigation and in the accommodation provided for the officers and ratings.

Left to right: Mr. W. K. Hutchison, Chairman of the South Eastern Gas Board, Captain G. G. Stockdale, Sir John Maud, K.C.B., C.B.E., Secretary of the Ministry of Fuel and Power, in the wheelhouse of the m.v. 'Mitcham.'

Correspondence

GAS IN JAPAN

DEAR SIR,—After reading your leading article 'Gas in Japan' in your July 1, 1953, issue, I should like to inform you that our Association is already a member of the International Gas Union, and is keeping a close contact with your Institution of Gas Engineers (by courtesy of the Institution's Secretary, Dr. Braunholtz.

You say, 'excellent as it is, the survey leaves a number of questions unanswered.' I will try to satisfy your curiosity by answering the questions raised in your article.

The staple food for the Japanese is rice. It is boiled when eaten, not so soft as rice pudding. For boiling rice, cast-iron ring burners (similar to those employed in chemical laboratories) are generally employed. The Japanese are fond of hot baths, and a so-called 'gas-bath' is getting popularity, a special gas burner being fitted to the bath tub.

There is not much difference, though the quality may be somewhat inferior, in other appliances such as gas ranges, gas fires, circulators, and instantaneous and storage water heaters. The only imported appliance now is the Electrolux gas refrigerator. The automatic gas range of American manufacture is still beyond the purse of the average Japanese householder.

There is not much need for publicising gas at present, as the demand for gas is strong enough without a help of 'an almond-eyed Mr. Therm.' You may wonder why it is so. The point is that the availability of gas (number of consumers/number of households within the gas supply area) is still very low here, only 32.2% on average, and 52.5% even in Tokyo, our metropolis. We will need more than 52 billion yen (about £52 mill.) to raise the average figure to 40% in five years. How to obtain the necessary fund for extension is a headache for every gas undertaking. Won't some British magnates invest in the Japanese gas industry?

Yours faithfully,
AKIRA SHIMOMURA,
Ph.D., D.Eng., F.Inst.F.,
Executive Director.

Japan Gas Association,
38, Shiba Kotohira-Cho,
Minato-Ku, Japan.
September 7, 1953.

'S' OR 'Z'?

DEAR SIR,—May I enter one more protest against the continued use of the 's' instead of 'z' in the standard spelling of our key word 'carbonization.' It will be common knowledge that a committee of the British Standards Institution is now revising the Glossary of Gas Industry Terms, and this is the appropriate time to consider this apparently trivial point.

Apart from the fact that the spelling -ise is etymologically wrong, the B.S.I. itself in, as far as I can see, all its other publications and in its own official issues, uses-ize. Its object is to assist industrial productivity, it says, 'through the three S's—Simplification, Standardization and Specialization.' It participates in the International Standards Organization. And whenever else 'carbonization' occurs in the British Standard Specifications the 'z' is used.

In publications of the Fuel Research Board the spelling is 'carbonization.'

To quote Eric Partridge, basing his remarks on the Oxford English Dictionary, to employ -ise is to flout etymology and logic. Moreover, whether the spelling be -ise or -ize the pronunciation is -ize; another reason for using it.

Why should the gas industry go out of its way to flout etymology and logic?

—Yours faithfully, J.J.C.B.B.

September 6, 1953.

PUSHING COKE SALES

DEAR SIR,—The prizewinning paper on 'Increasing the popularity of Coke Sales,' which was published on pp. 343-348 of the *Journal* of August 5, influenced me most in its final words: 'If coke is to be made more popular, a fundamental change in outlook is required.' Today, the public is satiated with all sorts and conditions of advertisements, covering all commodities, so much so, that very little indeed is digested of what the people read.

Taking a long and backward glance, I remember, some 40 years ago, a very neat, simple, and successful scheme. In those days gas showrooms had not developed, so imagine a rather dowdy shop, containing a few gas fittings, and under the charge of a storekeeper for gas fitter's requisites. Then the new gas manager arrives and, finding himself in difficulties with the selling of his coke, he, quite in a matter-of-fact way, placed an open coke fire in his dowdy showroom, with two chairs, a scuttle containing the coke fuel for the day, and a daily log of coke burned, and on the mantelpiece he printed 'This coke fire costs only a farthing per hour.'

It was a very hilly district and people coming down from the hills were often glad to sit awhile in the chairs and have a comfy warm and a chat together. In this way they convinced each other that the farthing was the truth, so that many became coke consumers and the problem was solved, without literature.

More recently a town was seriously considering the adoption of district heating for a newly developed residential area. The corporation called a meeting of ratepayers: (1) To explain its scheme; (2) To ratify its proposals. Many ratepayers wanted to talk and air their views, so much so that as 'time waits for no man,' there was danger of the meeting defeating its own ends, by being swayed only by the 'tyranny of work.' One ratepayer, however, was very brief and factual, saying: 'Your estimated charge for hot water, by this district heating scheme, is to be 8s. 6d. per week per house. I have a continuously burning coke-fired domestic boiler, which provides me with all the hot water I want, warms my kitchen, and my bathroom, and generally airs the house and gives it a lived-in atmosphere. My fire consumes 12 lb. of coke per 24 hours, which costs a farthing per hour, or 3s. 6d. per week, which compares with your 8s. 6d. per week. My figures are facts. Your figures are problematical. Therefore I shall vote against the proposal on the grounds of inefficiency.'

These two backward glances will, I hope, act as pointers towards that 'fundamental change in outlook.'

Yours faithfully,
H. J. TOOGOOD.

'Stoke Pero,'
43, Uxbridge Road,
Hampton-on-Thames,
September 7, 1953.

Diary

Sept. 3-17.—ENGINEERING, MARINE, AND WELDING EXHIBITION (including Chemical Plant Exhibition). Gas Council exhibit. Olympia.

Sept. 10.—WALES AND MONMOUTHSHIRE SECTION, I.G.E.: Annual General Meeting, Broadcasting Hall, Trinity College, Carmarthen; Discussion on the Report of the visit of the Gas Industry Productivity Team to the United States to be opened by E. M. Edwards, Member, Wales Gas Board.

Sept. 11. SCOTTISH JUNIORS (WESTERN): Presidential Address, Alex. Walker (Motherwell); Royal Technical College, Glasgow.

Sept. 15.—IRISH GAS ASSOCIATION: Annual Meeting, Tramore.

Sept. 15-18.—ASSOCIATION OF PUBLIC LIGHTING ENGINEERS: Annual Conference and Exhibition of Street Lighting Equipment (including Gas Council display), Liverpool.

Sept. 21.—EASTERN G.C.C.: Connaught Rooms, Kingsway, London, W.C.2, 2 p.m.

Sept. 21-24.—INTERNATIONAL ROAD TAR CONFERENCE, May Fair Hotel, London.

Sept. 23.—SCOTTISH ASSOCIATION OF GAS MANAGERS: Annual General Meeting, Edinburgh.

Sept. 23.—NORTH WESTERN FUEL LUNCHEON CLUB; Address by Mr. Gerald Nabarro, M.P.

Sept. 25.—MANCHESTER AND DISTRICT SECTION, I.G.E.: Visit to Petrochemicals, Ltd., Irlam, Manchester.

Sept. 26.—EASTERN JUNIORS: Presidential Meeting at Ipswich.

Sept. 26.—NORTHERN JUNIORS: Visit to Keswick Gasworks to inspect modernised retort house.

Oct. 1.—NORTH OF ENGLAND SECTION, I.G.E., and NORTHERN JUNIORS: Joint meeting. Discussion on Report of Gas Industry Productivity Team's visit to the United States. W. H. B. Porter and D. J. Colvin will answer questions. Northern Gas Board Assembly Hall, Market Street, Newcastle-upon-Tyne, 2.30 p.m.

Oct. 6.—MIDLAND JUNIORS: Presidential Address: J. A. Tomes (Stourbridge). Birmingham.

Oct. 7.—SOUTH WESTERN SECTION, I.G.E.: Annual General Meeting, Bristol.

Oct. 7.—INSTITUTE OF FUEL: Melchett Lecture, 'The Domestic Appliance Industry and Fuel Usage,' Dr. Harold Hartley, C.B.E.; Institution of Mechanical Engineers, Storey's Gate, 5.30 p.m.

Oct. 9.—SCOTTISH JUNIORS (WESTERN): 'Some Notes on Starting up a Continuous Vertical Retort Plant,' A. F. Cottrell (Woodall Duckham Co., Ltd.). Royal Technical College, Glasgow.

Personal Notes

MR. A. W. WREN, Assistant Technical Coke Sales Officer of the Newcastle Division, Northern Gas Board, has been appointed Divisional Coke Officer of the Warwickshire Division, West Midlands Gas Board.

MR. B. G. H. J. HAWKINGS, Distribution Superintendent of the Plymouth Group, South Western Gas Board, has been appointed by the West Midlands Gas Board to the position of Divisional Distributing Engineer, Warwickshire Division.

MR. EDMUND WALKER, M.C., of Luton, has been appointed by the Minister of Fuel and Power to be a part-time member of the Eastern Gas Board. Mr. Walker is a local director of Barclays Bank at Luton, and is chairman of the Luton Water Company.

MR. DONALD H. HASLAM has been appointed Legal Adviser to the National Coal Board in succession to MR. R. S. S. ALLEN, who is leaving the Board to undertake post-graduate study in international air law under a Rockefeller Foundation grant at McGill University, Montreal. Mr. Haslam is at present Assistant to the Legal Adviser at the Board's headquarters, and takes up his new appointment on October 1.

MR. R. G. LUXON has retired from the position of Engineer, Manager, and Secretary of the Guernsey Gas Light Company after being in charge of the undertaking for 26 years. Last year the Directors appointed him to a seat on the board in order that his knowledge and experience might still be available to the company. The Directors have appointed MR. S. G. VANE, who has been with the company since 1948, to fill the position of Engineer, Manager, and Secretary.

MR. G. PERCIVAL has been appointed Technical Sales Representative of Monitor Engineering & Oil Appliances, Ltd., Birmingham, and will be concerned with promoting sales for the new Monitrol automatic shut-off valve and other types of gas controls which are being manufactured in co-operation with the Robertshaw-Fulton Controls Company of the U.S.A. Mr. Percival was at one time a member of the technical staff at Watson House and until recently was employed on the sales staff of British Thermostat Co., Ltd., Sunbury-on-Thames.

MR. W. T. NEWTON, who, as already reported in the *Journal* has given up the position of Divisional Engineer, Walsall and District Division, West Midlands Gas Board, consequent on his appointment as Chief Sales Engineer, Woodall-Duckham (Australasia) Pty., Ltd., was the guest of the evening at a dinner and social recently arranged at the Blue Gates Hotel, Smethwick. The attendance included a number of his colleagues in the West Midlands Gas Board area and business associates from all parts of the country. During the evening the presentation of a camera from the gathering was made by Mr. E. Hardiker, Divisional General Manager, Walsall and District Division, who referred to the high esteem in which Mr. Newton was held by all who had been in contact with him; he also voiced the feelings of all present in wishing Mr. Newton health, happiness, and prosperity in his new sphere of life in Australia.

MR. J. R. KNOTT has taken the post of Marketing Officer on the staff of the Commercial Manager of the East Midlands Gas Board. He began his career with Laurance, Scott Electromotors, Ltd., in Manchester, where he spent five years in the workshops and drawing office. In 1939 he joined the Royal Horse Artillery and served for seven years, leaving the Army as a Staff Captain, R.E. After the war Mr. Knott went to Thomas De La Rue & Co., Ltd., Gas Division, as Midland Sales Manager, and at the end of 1950 was appointed General Works Manager of their factories at Warwick, Wandsworth and Strathendry. He later moved to company headquarters in London to take over the export department and become a member of the Gas Committee of Management.

LORD LEATHERS, Secretary of State for Co-ordination of Transport, Fuel, and Power, tendered his resignation from that office last week, having served for nearly two years. In his reply to Lord Leathers the Prime Minister wrote: 'The office of Secretary of State for the Co-ordination of Transport, Fuel, and Power was specially created in order to enable you to apply to the problems of public administration your personal knowledge of these industries and services. Your contribution in this office has been essentially a personal one and the justification for this special post will disappear when your services are no longer available. Now that we are in smoother water we can rely on the normal methods of Cabinet procedure to secure co-ordination between the departments which have been under your general charge.'

West German Tar Products.—Latest figures show a drop in output of tar products, with the exception of benzole, in Western Germany. Production of pitch fell from 76,600 tons in March to 67,800 tons, that of heavy tar oils from 42,900 to 35,200 tons, that of natural phenol from 630 to 590 tons, and that of other tar acids from 1,340 to 1,160 tons. In the case of refined benzole output increased slightly from 39,000 tons in March to 39,500 tons in April.

The Coal Industry Society has published details of courses in the scientific principles of fuel technology, and domestic and industrial fuel, beginning in October at the Sir John Cass College. The lectures may be taken in preparation for the examinations of the City and Guilds of London Institute and the Institute of Fuel. Details of the courses, or a prospectus containing particulars of other day and evening courses, will be forwarded on application to the Principal of the College, Jewry Street, Aldgate, London, E.C.3.

INTRODUCTORY VISIT

A PARTY of Divisional Sales and Service Managers of the West Midlands Gas Board, headed by Mr. J. Tudor Rees, visited the works of the Parkinson Stove Co., Ltd., Stechford, Birmingham, on August 14, to attend an introductory demonstration of the new Parkinson Renown Five cooker.

Mr. R. J. Rogers, Chairman of the Company, welcomed the visitors, who were entertained at lunch after the demonstration of the 'Renown Five' by Mr. J. Anstey, Sales Manager.

The guests were then conducted round the research and development section by Dr. A. Rees Jones, during which they had the opportunity of examining prototypes of other new appliances.

At the Stechford works. In the front row are J. Tudor Rees, Sales and Service Adviser, West Midlands Gas Board; R. J. Rogers, Chairman of the Parkinson Stove Co., Ltd.; Mrs. Roy (Deputising for Miss D. Humphries, Area Home Service Adviser); W. L. Hurdman; and I. Greenwood.

Parliament and Nationalised Industries

Further views on the Select Committee's Report

The Report of the Select Committee of the House of Commons on the Nationalised Industries (Journal, August 19, pp. 461-464, and August 26, pp. 521-524), with its recommendation that a new committee of the House should be appointed to watch, but not dictate to, the nationalised industries, has been widely discussed in gas industry circles. Realising that at the present juncture it might not be appropriate or politic for the Gas Council or the area boards, as interested parties, to comment on the Report, we have invited comments from representative leaders of the prenationalisation industry, following up the views of two Members of Parliament—one each from opposite sides of the House—which we published in our issue of August 26.

From WILLIAM CASH, M.A., F.C.A.

IN the Parliament of Edward III which met in April, 1341, a praiseworthy but premature attempt was made to establish the responsibility of the King's Ministers to Parliament. The Lords and Commons together petitioned: That Commissioners should be appointed to inquire into the accounts of such as had received the aids and other public monies. Critics of the Constitution of the United States of America have frequently remarked upon the very serious difficulties which flow from the inability of Members of Congress to ask questions of Ministers.

The articles by Mr. C. J. M. Alport, M.P., and the Rt. Hon. Alfred Robens, M.P. (which were published in the *Gas Journal* of August 26) both touch upon the roots of the problem. When these are examined it will be found that the disease which it is intended should be cured consists almost entirely in the lack of time that Parliament—and particularly the House of Commons, has at its disposal and also the ignorance of the average M.P. of the method of interpreting complicated accounts. It is to be regretted that, without infringing upon the rights of those who control the National purse, more use could not be made of the House of Lords.

If the original terms of reference are studied it will be seen that no one can suggest that pettifogging interference with the day to day adminstration of the nationalised industries is in contemplation. As Mr. Robens has said, if there is any weakness here it should be corrected by making the Consumers' Councils more effective. But perhaps the form of Report to be made by the nationalised industries might advantageously imitate those of the Metropolitan Water Board or those of the Chief Registrar of Friendly Societies or a leaf taken out of the annual reports of such vast industrial organisations as I.C.I. or Unilever. Here complicated statistics, consolidated balance sheets and other necessary evils are illuminated and explained by their accompanying comment. The reasons for this or that change in policy, the difficulties which the management has had to face, the methods by which this or that object is being achieved, and a variety of exposition of one kind or another enables the inexpert shareholder to follow the course of the industry.

No Member of Parliament can be expected to discover all this for himself. Insofar as an 'annual meeting' of each of the nationalised industries takes place at Westminster it is essential that a substantial report of this character should be in the hands of the shareholders' representatives before the meeting. If the proposed committee would begin its labours by drawing up dummy forms of annual report, having in mind the variety which must always exist between one nationalised industry and another, then my consultation with those who are in control over them, a picture of each could be presented and 'hung on the line' for the critics to examine. At the moment M.P.s must either crane their necks or bend their backs, and when they have done either or both these things the picture remains a 'problem.'

From Colonel R. H. STUDHOLME, O.B.E., M.A.

FROM the title and membership of the committee, its report might be expected to cover much ground. If the mountain has brought forth a mouse, this is mainly due to the narrow terms of reference. These required the committee only to consider the *present methods* by which the House of Commons is informed of the affairs of the nationalised industries, and to suggest desirable changes *in these methods*. They did not define 'nationalised industries,' of which 15 are named in the evidence. It is a pity that the report did not more clearly indicate to which it was intended to apply. It seems that transport, electricity, gas, iron and steel, coal, colonial development, film finance, and raw cotton are included and perhaps the two airways, but not broadcasting, overseas food, and some others. Of existing methods of information it lists ten, but does not mention enquiries by individual M.P.s to the industries direct. Some of these ten seem to have been of little use, and seldom used. The most obvious—the Parliamentary question—has been much restricted, and the resulting frustration was a major cause of the appointment of the committee.

Its first report unanimously declared in favour of restriction, a decision which may have impelled it to devise an alternative. The trouble taken to seek the best form of alternative appears from the 993 questions put to the distinguished witnesses examined. Their very conflicting opinions showed the difficulty of the problem.

Lord Reith maintained that it was too difficult—and too important—to be solved by anything less than a Royal Commission. At times, however, he seemed to forget that the search was only for methods of information. In his view the question 'who would be the boss?' was involved, and the State corporations would be 'terrified.' He feared 'direct interference,' but thought that 'something should be done and done quickly.' He mentioned quarterly reports, and a special Minister for Nationalised Industries, responsible for accountability and efficiency, in addition to the existing parent Ministers.

Mr. Herbert Morrison, M.P., also assumed that alteration of the actual management might be intended. For this he thought Parliament unsuitable and he proposed full scale enquiries by *ad hoc* bodies about every seven years. He also desired a 'common efficiency unit' as a permanent body, 'a really high-powered body of big people dealing with problems of sheer management and efficiency.' Unlike Sir Geoffrey Heyworth, he did not regard them as tender plants. ('I want them knocked about now and again . . . . . I do not want them to be protected from criticism by Parliament or by a select Committee or by ministerial indulgence.') Rather a stern parent, he did not think even a detailed examination by a committee would be sufficient.

Lord Hurcomb, though himself a potential victim, showed no terror at the prospect of a Parliamentary Standing Committee. He thought it the best solution and would welcome it as a helpful channel for two-way information—to the industries as well as to Parliament. Unlike the examination of reports and accounts by the Committee of Public Accounts, it would not be limited to post-mortems. It could look also at the present and future, and he felt that it would enable the industries and Parliament 'to make friends.'

Sir Geoffrey Heyworth spoke diffidently of his insufficient experience on the Coal Board but, as full-time Chairman of Unilever, Ltd., he was clearly an authority on the special problems of operating with efficiency a mammoth undertaking. Decentralisation and human understanding appeared to be the secret of his success. (Is it significant that the gas industry in Wales, where the accent is on the same two themes, has received favourable comment from the Acton Society Trust, and produces consistently impressive results?)

Sir Geoffrey, whose own examination of the gas industry is comparatively recent, put a wise finger on many vital

points. He knew how the problems of size are aggravated by 'suddenly creating the whole thing,' and saw the need for time for non-evolutionary creations to settle down. 'Nationalised industries are more tender plants and therefore much more susceptible to getting the jitters if there is too much investigation.' As an administrator, he hates the very word 'investigation.' In his own huge organisation 'people would get shot for using it, because of the alarm and despondency it would cause. It was never called that.' His own company was, in fact, employing outside consultants on two big jobs, but he stressed that this could only be done in the right atmosphere.

A large part of the evidence, and of the questions also, was aimed at diagnosing the existing problem. As some of us pleaded at the time, nationalisation was concentrated overmuch on changes of ownership, and the problems of future direction, control, and accountability received scanty and unrealistic attention.

Parliament created on paper overnight elephantine bodies which had no factual being as existing organisations. By the same stroke of the pen it removed most of those who were guiding and directing the component parts. It then blithely threw upon individual Ministers the duty of finding as best they could, and at once, the scores of super-men needed to bring the industrial monsters instantly to life.

The marvel is that the men appointed have done as well as they have. Parliament gave them duties that cried for their undivided concentration, but made them accountable to more than one master. In high policy they are Ministers who come and go and are themselves answerable to Parliament. In daily operation they are subject to the demands and criticisms of watch-dog bodies of one kind or another. On top of all this there is an over-riding but ill-defined accountability to Parliament. In some cases there is also subservience to a central body of the industry, and in all there was at first the sour taste of stale political dispute. How can these men give of their best when performing in the searchlight of scrutiny from Parliament, the public and the press, of the hostile and seldom well-informed? No-one, least of all Parliament, should be surprised if they cry out, 'We have been given mighty tasks. For Heaven's sake leave us to get on with them.'

It seems a reasonable demand, and is perhaps essential for real efficiency, but in nationalised industries it can't be done. Many of them have one hand in the taxpayer's pocket. Some quickly blotted their copy-books, and ground nuts and Gambia hens are not easily forgotten.

Transport, iron and steel, electricity, and gas do live wholly on the revenue from their consumers and are capitalised by private investors. Still the public can and do complain to their M.P.s as payers, though not as taxpayers. In the fever of party politics the House of Commons threw away much of its direct control of the public purse which it had fought for and jealously guarded for hundreds of years. Truly the more nationalisation, the less democracy. Now, after the honeymoon, remorse.

To be fair, what Parliament is seeking is not to take back full fiscal control, but only to be better informed. Understandably the M.P. dislikes having to tell his constituents that he cannot even put down questions on their grievances. He can only speak to the Minister, who himself cannot do much, or write to the Board, whose answer is defensive and therefore suspect. On broader issues also, Members need (but cannot get) the material to make their debates more knowledgeable.

They do, of course, see the annual reports and accounts. These are sometimes masterly and always full of meat, though sometimes rather dead meat. Their very complexity calls for guidance on trends and essentials, and on future policy they offer little.

On vital problems relating to the national economy, Members may well feel anxious (and ignorant) as to the direction and efficiency of the state-owned basic industries. Parliament, and the Minister himself, have less control now than they once had over, say, the Gas Light and Coke Company or the Birmingham Gas Department. It can at least expect more, and less stale, information.

It may be also that information in both directions would be of real value to the nationalised industries themselves. Concentrating as they must do, on their individual organisations, it cannot be easy for them to see in true perspective the broader national picture which is the concern of Parliament. Through the filter of an experienced Standing Committee, eliminating what is irresponsible, and tempering what is unfairly prejudiced, they may have a continual private view of the trends of public opinion, from which a wise Board might gain much.

Above all a well chosen Standing Committee might well provide the nationalised industries with a much needed method of making clear to Parliament its own difficulties and viewpoint. Sir Edward Bridges thought that the nationalised corporations might come to value the chance to give their own answers, direct and in relevant privacy, to Parliamentary ears. If they could answer only through Departmental officers he thought they would say in time, 'Damn these people. Why do they worry about this? If only we could go and give evidence ourselves, we could explain it so much more easily.'

The report has recommended a Standing Committee whose object would be that of 'informing Parliament about the aims, activities and problems of the Corporations and not of controlling their work.' The Select Committee was unanimous that this was the best instrument it could devise to make more workable a set-up that somehow must be made to work.

It is clear that it would not be the function of the Standing Committee to give orders, or to harass, or to breathe down the neck of the man at the wheel. Between autonomy and control the choice has already been made. The machinery is creaking, and there are stresses and strains that need to be eased. Much will depend on the personalities involved, and some trial and error may be unavoidable, but a sensible approach by both sides can probably be taken for granted.

The report can be criticised easily enough. Perhaps naturally it seems to have more thought for the taxpayers than for the consumers. The latter, as Mr. Morrison says, are 'sometimes strangely forgotten' and, 'really want looking after.' This calls for improvement in the consumers councils, etc., which is outside the terms of reference, but might well lessen the present pressure on M.P.s.

The only reason stated for deciding against a Joint Standing Committee of *both* Houses, seems weak. Many witnesses (including Captain Crookshank, M.P., Mr. Morrison, M.P., Lord Reith and Lord Hurcomb) strongly favoured a Joint Committee.

It is true that in most of the nationalised industries public money is involved, but when the Commons has on a large scale surrendered into unparliamentary hands the control of much taxpayers' money, it is not very consistent to deny to the other House participation in a mere gathering of information. Good reasons for a Joint Committee are mentioned in the report. It might be added that 'accountability' is to Parliament, and not merely to one House. The other already lacks the advantage of the presence of the Ministers directly concerned. It might well demand a new source of information for itself, if not invited to co-operate with the consumer. A possible compromise would be to allocate to a Joint Committee the major industries of transport, gas and electricity, which do *not* handle taxpayers' money, and to have a Commons Committee for the remainder. This would not only meet the financial argument but also ease the very real problem of Members' time.

To be fair to the report, it must be remembered that the Select Committee was dealing with the nationalised industries as a whole. From the angle of the gas industry there should be no need for alarm. Gas, being self-supporting and decentralised, has not attracted its share of Parliamentary attention. There has not even been a debate on any of its accounts. Also gas is almost the only nationalised industry which has no operational central body. Any full scale probing would involve the examination of thirteen sets of reports and accounts, which would hardly commend itself to a hard-worked Standing Committee without good cause. In the proceedings of the Select Committee there was a pleasing absence of expressed concern as to any aspect of gas supply.

It may be said of both gas and electricity that two of the major difficulties which troubled the committee do not apply to them. Neither is open to the criticism of growing fat from absence of competition, and neither is without a basis of comparison, since the performance of any area board can be measured against the others.

Nationalisation as a new experiment is bound to throw up new problems for which answers must be found by further experiment. That suggested in the report may prove no more than a palliative, or it may be the start of a new technique to oil the wheels of State ownership. Be that as it may, the proposal involves nothing drastic, ill considered or irrevocable. It deserves a fair trial.

A CIRCULAR has been sent to the shareholders of Benzol & By-Products, Ltd., outlining the adjustment proposal announced at the beginning of June under which preference shareholders would receive 30s. a share, together with arrears, and the ordinary shareholders the remaining assets. It is proposed to make a first repayment of about 9s. 10½d. in respect of preference dividend arrears and 24s. a share in respect of the preference capital, and at the same time such an amount on each ordinary share as will leave intact the additional 6s. a preference share.

Gas to heat and ventilate a BANK

an experimental installation of 'Halcyon' heaters incorporates an ingenious horizontal flue without vertical lift

A SUCCESSFUL experimental heating and ventilation installation has recently been carried out at the Manor Park branch of the Midland Bank by the North Thames Gas Board in co-operation with Wm. Sugg & Co., Ltd.

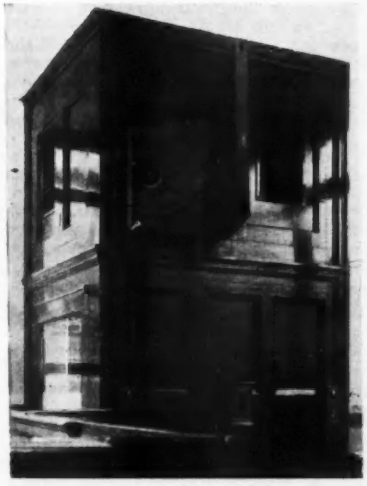
The Bank, with its traditional high counters and dwarf partitions, and its large expanses of glass with a northerly aspect, presented a heating problem insofar as it would have been difficult to achieve an even temperature without forced air circulation round the partitions and counters. A central heating system was ruled out as space was not available, either on or below ground level, to accommodate heating equipment.

After consultation between representatives of the Bank, the Board, and Sugg's, it was decided to install an experimental installation of 'Halcyon' heaters.

To effect this, it was decided to reconstruct the entrance to the Bank by removing the fanlight and the borrowed lights from the partition, and install in place of the latter the air outlet louvres and the inspection doors, and with the installation of a false ceiling in the lobby a compartment was formed to house the equipment. The whole of this reconstruction work was carried out in materials to match the existing mahogany joinery of the Bank.

The return air trunking is taken from a point at low level behind the lobby door and up into the heat exchanger compartment. Provision is made at the base of this trunking on the lobby side for a predetermined amount of fresh air to be induced into the system at low level. The flues of the heaters are taken through the front of the Bank over the main entrance, and a special heat resisting facia panel was constructed in a plastic material to tone with the exterior of the premises. The flues terminate in the centre of this panel and are finished in a colour to tone with the general colour scheme.

The flues are terminated with 'Aerolite' terminals which are stood off from the facia by approximately ½ in., and an annular space a little less than the diameter of the terminal is left round the flue. This annular space round the flue serves several purposes. It acts as a form of balanced flue so that when wind pressure builds up on the front of the Bank air can enter behind the terminal into the heat exchanger compartment, and tend to equalise the pressure. It also permits a proportion of fresh air to enter the heat exchanger compartment. It prevents a negative pressure being built up in the heat exchanger compartment and so causing spillage at the baffler.



The interior access door open and the clock control

Interior view with access door closed and showing the method of air re-circulation and the control switches and wiring lights

As it was necessary to have a certain amount of horizontal flue and it was not possible to have any vertical lift, a system was devised whereby a small quantity of air is taken from the fan compartment, collected in a small header box, and then passed through a tube formed in the manner of an injector, into the centre of the horizontal flue. This injector only takes about 1½% of the total air produced with the fan and assures the positive functioning of the flues even in adverse wind conditions. In actual fact it is possible with this particular arrangement to have up to 9 ft. of horizontal and no vertical flue, and still achieve complete clearance of the products.

The plant is under clock control and it has been found that the best location for the air thermostat is midway between the warm air outlet and the return air inlet. The warm air outlet does in fact induce a pocket of return air midway between the air inlets and outlets, and has been found to represent the optimum air temperature of the premises.

The exterior of the Bank, showing flue termination. The annular space is just discernible round the base of the terminals

Arrangements have been made electrically for the switching of the plant from winter to summer operation, so that an all-the-year-round service has been provided for (1) air heating and ventilation in the winter, and (2) air circulation and positive ventilation in the summer. Under test it was found that the temperature of the premises is precisely controlled and there have been no signs of condensation or discoloration at the facia over the entrance.

THE South Western Coal Board announces that a new colliery, which will cost £6 mill., is to be sunk 10 miles north-east of Swansea. It is intended to exploit a virgin area of anthracite, where workable reserves are 134 mill. tons. The new colliery, to be named Abernant, is the largest of several developments which are being undertaken in the Neath area of the coalfield. Sinking of the shaft will take two to three years, and the pit will be 800 yards deep, the deepest in the coalfield. It is expected to be in production in 1958.

The Report was released for publication on September 7.

Towards Fuel Conservation

Abstracts from the Report of the British Team which visited U.S.A.

THE British Specialist Team on Conservation of Fuel, Heat, and Energy, appointed in January, 1952, under the leadership of Mr. W. L. Boon, Director of the Fuel Utilisation Division, Powell Duffryn Technical Services, Ltd., published on Monday of this week its report on the visit made to the United States of America under the auspices of the Anglo-American Council on Productivity and the Mutual Security Agency, now Foreign Operations Administration. The visit was planned for the purpose of studying the application and conservation of fuel, heat, and energy with a view to improving the efficiency of fuel utilisation in British industry and indicating ways and means by which a national fuel policy might be developed.

SPACE HEATING

Among the subjects studied was that of space heating, on which the team has the following to say:

In the areas visited by the team, the near middle-west and the north-east of America, the winter climate is very severe; temperatures of 30° to 40°F. below freezing-point are not uncommon. The humidity in these areas is also, generally speaking, much lower than in the United Kingdom. In the warmer southern States, where average winter temperatures are much higher, only occasional space heating is needed and the major requirement in factory plant is for summer cooling. Even in the recognised warm locations, such as Atlanta, Ga., St. Louis, Mo., and Washington, D.C., temperatures as low as minus 22°F. have been recorded, indicating the need for space-heating equipment to deal with a wide range of conditions. It is customary, however, to select as the outside temperature not the lowest on record but a figure some 15° higher. Inside design temperatures vary according to the use of the building, and Table 1 gives figures generally accepted.

TABLE 1.—*Design temperatures for buildings, by class, in the U.S.*

Class of building	Temperature °F.
Churches	65-68
Factories and machine shops	60-65
Foundries and boiler shops	50-60
Garages	50-55
Hospitals	70-80
Hotels	68-72
Offices	68-72
Residences	72-75
Restaurants	68-70
Schools	65-72
Theatres	68-72

The plants visited by the team were mostly industrial concerns located in the north-eastern area, where in the main the type of installations and methods employed for space heating were similar. In the older buildings steam at up to 30 lb. pressure was in general use, with vacuum return systems. In the larger and more up-to-date factories space heating by hot water seemed to be the rule, and the general indications are that this method is gaining popularity.

Hot Water

The team inspected three interesting and extensive plants employing it. One circulated the water over a distance of one mile through 12 in. diameter mains at medium temperature (maximum 180°F.) for heating various sections of the factory. This heat was provided by four 50,000 lb. per hour, coal-fired, water-tube boilers *via* a back-pressure turbine, running in parallel with the public supply, which generated a large proportion of the total power requirement of the factory. During the summer months, with no space heating, all electric power is purchased from the public utility. At the time of the visit the system was operating at a 10° temperature difference between the flow and return, with an outside temperature of 35°F. The final back pressure of the turbine was only 3 lb. per sq. in. to the water heaters.

United States engineers readily take advantage of any large space-heating load for the generation of electricity. We were informed in the case mentioned above that the cost of back-pressure power was only one-third of that from the public supply.

Another installation was seen at a large research institute with buildings spread over a very large acreage, incorporating modern generators supplying steam at 160 lb. per sq. in. to the calorifiers, which at the time of the visit were maintaining a flow temperature of 150°F. into the heating system, with a water return temperature of 145°F.—a temperature difference of only 5°F. with an outside temperature of 30°F. In both these plants the hot water circulating pumps were steam-driven, with exhaust discharging to the calorifiers, thus materially improving the thermal efficiency of the plant.

It was noticed that, whilst most of the installations seen were designed for an outside temperature of 0°F. at the time of our visits, owing to the fact that the outside temperature was between 20° and 30°F., the buildings were mostly overheated. It was quite common to find an inside temperature of over 80°F. with a designed temperature of 70° to 75°F.

In most cases where boiler plant was provided solely for space heating it was usual to find a self-contained packaged boiler (Economic type) or a water-tube boiler, according to the size of the heating installation. Nowhere did the team see cast iron sectional boilers used for space heating, although it is known that these are manufactured and used to a limited extent. Generally, heat distribution was by conventional arrangements of coils, radiators, and convection units, on similar lines to practice in the United Kingdom, but in one plant which had buildings of revolutionary design—*i.e.*, windowless—a combined system of winter heating and summer cooling is obtained from the same units.

Distributing Mains

Distributing mains were frequently run overhead outside buildings, and particular care was taken with their insulation and support. In most cases long mains were provided with the customary expansion bends, but in one instance it was noticed that no provision whatsoever was made in the mains for taking up expansion other than by allowing complete freedom of movement. All branches were taken from the mains in such a way that they accommodated themselves to the movement of the mains. The modern practice with all steam mains is to weld the pipes into long lengths, avoiding joints to the greatest possible extent. In a factory recently built the complete pipe system was welded, including the branch take-offs and valves, a method that has the merit of avoiding leaking joints and reducing maintenance. Great care is taken, however, to ensure that the welding is of first-class workmanship, without projecting beads to impede the flow or to give opportunity for corrosion inside the pipe.

For underground mains a number of firms in the United States have specialised in prefabricated insulation fixed to the pipe before delivery to site, so that the mains

can be welded up into position, leaving only a small length of insulation to be put on over the joints *in situ*. In some installations, aerated concrete of different types is employed for insulation, the pipes being laid in trenches provided with a concrete bottom and the trenches filled with the aerated concrete. A considerable saving in first cost can be made by omitting conventional pipe ducts and this method of laying and insulating pipes is worthy of detailed investigation for possible adoption in this country. Another American firm has developed an interesting system of corrugated pipe ducting, suitably protected, which is welded spirally to form steel ducts up to 21 in. in diameter and 21 ft. long, in which one or more flow pipes are inserted as required. The pipes are packed round with insulating materials, the pipe ends protruding ready for welding at site. The cost of laying ducts underground has by this means been reduced to a minimum. This system, too, would be worthy of investigation with a view to adoption in the U.K.

One of the largest district heating plants seen was the Public Building Services which supplied heating to Government buildings in Washington, D.C., over an area of 6 sq. miles, at an initial steam pressure of 250 lb. per sq. in. The 18 in. and 20 in. all-welded mains were insulated with 4 in. of 80% magnesia wrapped with bitumastic paper.

As a general rule the provision of hot water in factories in the States follows the traditional lines of using steam/water calorifiers. But one system which the team saw in

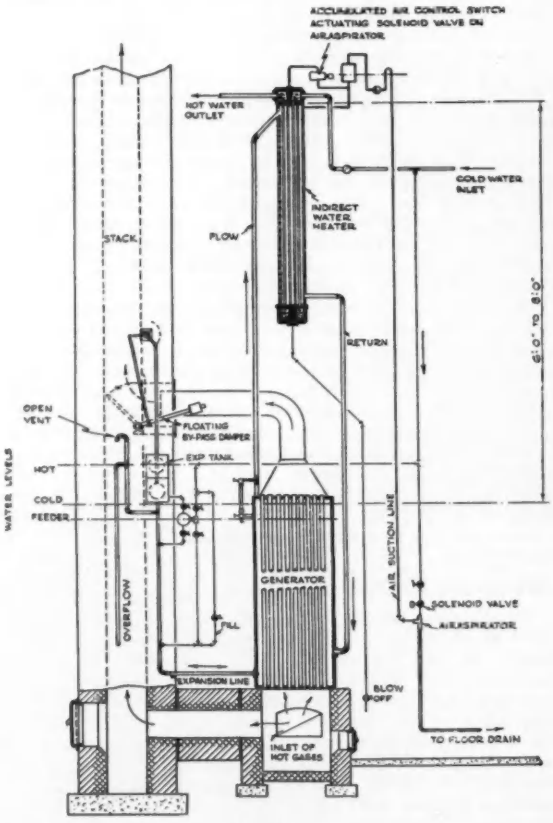


Fig. 1.

Schematic arrangement of hand-fired incinerator and water heater

an engineering works consisted of a water heater connected to a hand-fired incinerator for burning the factory waste. (Fig. 1.) The apparatus was said to operate at an efficiency of approximately 40%. Automatic control was arranged to by-pass the boiler and divert the gases direct to the chimney when the water reached the required temperature. While this form of heat recovery is not unknown in the United Kingdom, there are possibilities of its wider use. It is a cheap source of hot water supply and the boiler can be used for hot water storage, particularly when the use of the incinerator is intermittent.

Instruments for control of temperature, humidity, and pressure were found to be in general use in every plant which the team inspected. These embody the same principles as those generally available in Britain, but there is a marked difference in the extent to which instruments are used in the two countries. Space-heating conditions and efficiency could be improved considerably in the United Kingdom by the installation and proper use of control instruments.

Electricity

In general, electricity is rarely used for space heating in the United States, and the load is only sought by electricity supply companies in special circumstances where it can improve the load factor. In some areas, particularly the South, the electricity companies go to great lengths to divert space heating away from electricity, actively campaigning against its use for that purpose.

For example, the Florida Power Supply Company has devoted considerable expenditure to advertising and providing a service for the sale, installation, and maintenance of oil-burning space-heating equipment to meet a demand which, because of climatic conditions, is purely of a sporadic and intermittent character. The campaign has been a great success if viewed only as an enterprise for the sale and installation of oil-burning equipment, but of greater importance is the fact that the electricity undertaking has succeeded in providing its consumers with effective space heating without involving itself in heavy capital expenditure in the generating station on plant which would be standing idle for a large part of the year.

Electrical space heating has been actively canvassed in Britain, and this, combined with the restrictions on solid fuel supplies that have been in force since 1940, has led to a very substantial domestic demand for electricity which has had a grave effect on the overall supply position, with attendant disturbance of industry.

The team strongly supports the view that it is fundamentally wrong and economically unsound in our present circumstances to divert electricity to space heating, a load that could be better carried by less refined fuels.

Heat Pumps

More than 600 heat pumps have been installed in 39 American States, aggregating at least 7,000 kW in power load. Heat sources are divided as follows:

56% from water supply sources,
36% from the air,
7% from coils sunk in the ground.

The present stage of development of the heat pump corresponds roughly to that of mechanical refrigeration in the early 1920's, when a refrigerator was a novelty. The electricity supply undertakings, particularly those in the warmer States, have become interested in the heat pump as a potentially important means of improving load factor.

The true economics of the heat pump for space heating have not yet been finally established, and a series of tests is now in progress in different parts of America using various heat sources and different applications under widely varying conditions. It is early as yet to draw any conclusions which might apply in Britain, where, in any event, the climatic conditions are less favourable to the system than in the United States. Where, however, a factory has a process requiring both heating and cooling simultaneously, then there is a possible case for the heat pump as a fuel-saving unit, and it might be favourable for food-processing factories.

Building Construction for Heat Conservation

A current trend in the United States is towards one-floor factory buildings, flat-roofed and windowless. However, in contrast, buildings such as hospitals, offices and showrooms have gone in the opposite direction, striving all the time for more light by enlargement of the glass area. This urge for 'light' has meant a higher heat requirement to balance the increased 'through glass' heat loss. Double glazing, which would cut down the loss, is making

some headway, but its cost is a barrier to progress. An outstanding example of this 'greenhouse' method of construction seen by members of the team is the already famous office building of the Unilever group of companies on Park Avenue, New York City, which was completed about May, 1952. The walls are entirely of glass specially treated to cut down glare and excluding, by reason of its heat-absorbing properties, about 65% of direct solar radiation.

It was stated also that the summer cooling load will be reduced considerably by the use of the special glass and that excessive local heating by direct radiation from the sun will thus be avoided. A modern, one-floor flat-roofed, windowless factory, designed and built during late 1951 and early 1952 for the Lincoln Electric Company at Cleveland, Ohio, was inspected. In this factory windows and north lights are entirely eliminated as one of the biggest sources of heat loss, and this plus an economic degree of building insulation has enabled the full benefits of air conditioning to be obtained with no greater consumption of fuel than that required for ordinary space heating alone in factories of orthodox construction.

Full air conditioning on a volumetric basis was not carried out in the above factory because of the high clearance under the roof trusses. A height of 23 ft. was required to give operating space for the cranes over the tallest machinery, and to permit stock storage up to 17 ft. Instead, the problem was met by a new approach which uses only a third as much power for cooling and less heat than would a full-volume warm air system.

The novelty lies in the zoned distribution system that releases tempered air under pressure to give a working temperature of 70°F. along the assembly lines where most of the operatives work. Outside air for this system is drawn in through the roof to a cooling and heating unit arranged in the trussed space at the centre of each aisle. The tempered air is distributed from ducts extending down the columns to a point 8 ft. above the floor. The outlets at this point are arranged to direct the air towards the populated areas, from which it spreads into the

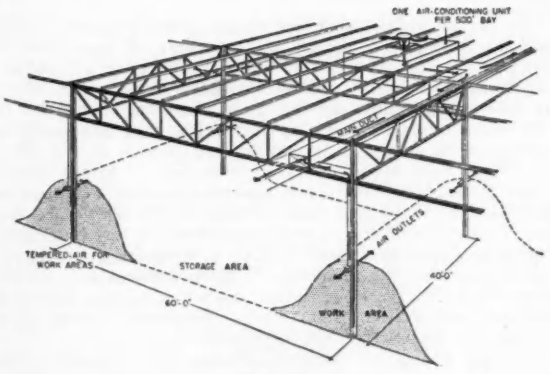


Fig. 2.

Zoned system for the distribution of tempered air in a factory. From air-conditioning units at ceiling level the air is circulated, under slight pressure, through horizontal ducts in the roof, thence down vertical ducts at columns, and is released at points 8 ft. above the floor and adjacent to work areas.

stockpile areas between the assembly lines and passes upwards through the suction fans in the roof (Fig. 2).

Prefabricated metal wall and roof units in convenient sizes for quick erection and complete with insulation are readily available in the United States, and these have been used exclusively for enclosing the Lincoln factory space of 17 acres. The wall units (Fig. 3), with a total thickness of 6½ in., include two air-spaces, plus 1 in. of glass fibre insulation, giving a weight per sq. ft. of 3¾ lb. with a heat transfer co-efficient of 0.25 B.Th.U. as compared with 0.5 B.Th.U. for a 9 in. solid brick wall. In passing, it might be stated that the team was much impressed with these prefabricated wall and roof units; they provide a quick, clean, dry construction. The air-spaces, being open at the top, provide adequate ventilation and so prevent condensation. The wall units, although of a permanent nature, can be removed for alteration or re-location without difficulty.

The team also saw a very good example of this construction at the Edge Moor power station, near Wilmington, Delaware, where a very large curtain wall had been erected in a temporary position. It was intended that this wall should be moved and become the permanent

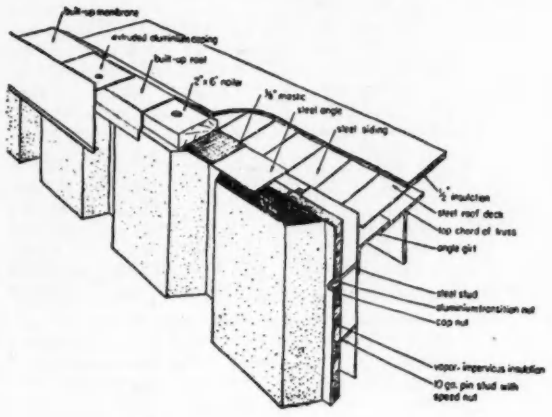


Fig. 3.

Prefabricated factory wall unit of metal with heat insulation and two air-spaces, giving a total thickness of 6½ in.

end wall of the complete station. In its temporary position it was just as effective and as good looking as a permanent wall.

The method not only conserves heat, material and labour, but makes for more economical and quicker factory construction. It is hoped that roof and wall panels prefabricated on the principle outlined above will become available in the United Kingdom.

Degree-Days

In this country, in spite of numerous attempts by a few trade organisations, very little has been done to make general use of 'degree-days' for checking and forecasting fuel consumption and the requirements of space-heating plants, as a means of saving fuel. Much has been accomplished, however, in this direction in colder parts of the United States and the team was made aware of the importance attached to it by engineers in charge of space-heating plants; even the man in the street was found to be degree-day conscious.

Two excellent reference books[1] are available to the reader who is not familiar with degree-days and their use and who may require more detailed information than can be given in this Report. The base temperature used for the calculation of degree-days is 60°F. in Britain and 65°F. in the United States. Degree-days are 'scale' quantities—that is, they can be added together. Thus, in Britain, if the outside temperature remained constant at 59°F. for a week, then a difference of temperature of one degree would be maintained for that period and the heating requirements of a building would be proportionate to the week's total of seven degree-days. If the outside temperature were 58°F. for the same period, fuel consumption would be doubled because the total number of degree-days would amount to 14 instead of seven.

The outside temperature, however, never remains stationary for 24 consecutive hours, so that it is necessary to calculate degree-days from the more frequent temperature readings described in the publications referred to. Degree-days give a positive measure of temperature variations between areas and determine the total need

[1] 'Degree Days—Their Use and Application for Checking and Computing Fuel Consumption', originally published by the London and Counties Coke Association, 1, Grosvenor Place, London, S.W.1; 'Heating and Ventilation Annual Guide', published by the American Society of Heating and Ventilating Engineers, Cleveland, Ohio.

for fuel over any period. Table 2 details the 'normal' degree-days for 14 areas in Britain, based on meteorological reports over a long period. It will be seen that the warmest district is the West, with 3,223 degree-days, and the coldest the North-West, with 4,605 degree-days.

The check on the efficiency of utilisation of fuel consumed for space heating is provided by its direct comparison with the degree-days in any period. Such a comparison is illustrated in Tables 3 and 4. In the middle

TABLE 3.—*Coke used per month*

Month	Degree-days/month	Coke used (cwt.)
October	223	8½
November	408	15
December	379	14
January	516	19½
February	587	22
March	428	15½

column of Table 3 the number of degree-days is shown for each of the six winter months of the heating season, October to March. In the right-hand column is shown the monthly fuel consumption. If it were not realised by the user that January and February are very much colder months than December and March, then he would be dissatisfied with his fuel consumption during the former

TABLE 4.—*Coke used per degree-day*

Degree-days	Coke used (lb.)	Lb. of coke/degree-day
223	952	4.3
408	1,680	4.1
379	1,568	4.1
516	2,184	4.2
587	2,464	4.2
428	1,736	4.1
2,541	10,584	Average 4.2

months. However, by relating the monthly fuel consumption to the total degree-days for the month as shown in Table 4 it is apparent that the fuel consumed each month is virtually proportional to the number of degree-days.

Had the figure 'lb. of coke per degree-day' in the right-hand column of Table 4 risen materially during any one month, it would have indicated inefficient working of the space-heating plant. If the total installed heating surface in square feet or the total cubic content of a heated building is known, then the figure 'lb. of coke (or other fuel) per degree-day' can be expressed in terms of 'lb. of fuel per degree-day per 1,000 cu.ft.' Such a figure could be used for computing the seasonal fuel requirements of another building of similar character and construction where the degree-days for the period are either known or can be estimated. This degree-day method should be particularly useful to engineers supervising the heating of a number of buildings of the same type and construction, such as schools, hospitals, and public institutions.

An interesting use of degree-days and one of particular importance is practised almost without exception by suppliers of heating fuel in the United States. They calculate the factor 'fuel used per degree-day' for each individual customer from data obtained by card indexing over a reasonable period the dates and quantities of heating fuel deliveries and the degree-day figures. From this information the merchant knows when a further delivery is due and acts accordingly, which is of mutual advantage to the customer and the merchant.

INSTRUMENTATION AND AUTOMATIC CONTROL

This was another of the fields investigated by the Team, and the following commentary is of interest.

Instrumentation and the use of automatic boiler control, the report states, have been developed to a much greater extent in the United States than in the United Kingdom, mainly because of the urge to reduce labour costs. Every one of the 47 boiler plants inspected by the Team was reasonably well instrumented and fitted with some kind of automatic control, while in the public utility power generating stations and in the larger industrial plants visited remarkably few operatives were in evidence compared with British practice, the whole installation being controlled by push-button.

In making comparison between the two countries an important consideration is that in the United States boiler units are generally larger than in the United Kingdom, and as certain instruments and controls should be individual to each boiler unit if they are to be of real service it is clear that the total cost of instrumentation and automatic control equipment per unit of steam production is likely to be higher in Britain than in America. Indeed, the shortage of boilerhouse instruments in British industrial plants may well be due, in the main, to the large number of small boiler units in battery.

The opinion is held strongly by the Team that adequate instrumentation, proper recording, and the use of automatic controls where practicable are essential to the maintenance of high efficiency and that considerable economy in fuel both in the boilerhouse and in the factory can be so obtained. After all, measurement is the first step in any works campaign of fuel economy, and improvements in any direction can be achieved only by recording the existing conditions and studying them against a theoretical yardstick, while the automatic control of almost any process is not only more certain and more dependable than manual control, but is also bound to effect improvement in thermal economy.

Meters and Recorders

In British industrial boiler plants it is the general practice to install CO_2 meters or recorders of one kind or another for the guidance of the fireman in the adjustment of the combustion air to suit change in firing rate. Many of these instruments depend upon chemical absorption of the constituents of flue gas, and unless they are properly looked after they can be worse than useless in the effort to obtain high boiler operating efficiency. Proper instrument maintenance is, in fact, essential, and if it cannot be provided by the works staff it ought to be contracted out to the manufacturers. Costly equipment of this type often falls into disuse as a result of lack of knowledge or neglect on the part of the operator. This is inexcusable, as the manufacturers of boilerhouse instruments are only too willing to give full instruction in the proper use of their equipment and to provide maintenance.

Several makes of steam/air meters and recorders with automatic combustion control have been developed in the States and these are almost universally employed, from the smallest packaged boiler to the largest power station steam-raising unit. Several are marketed in Britain.

The different systems rely on the principle that the amount of fuel fired and the amount of combustion air introduced into the furnace must be closely regulated to

TABLE 2.—*Normal degree-days in the U.K. (accumulated temperature below 60° F. base), September to May inclusive**

Area	Thames Valley	South-East	South	West	Severn Valley	Midland	Lancashire	North-West	North-East	Yorkshire	East	South-East Scotland	West Scotland	East Scotland
Month														
September ..	113	123	99	86	123	134	113	221	203	153	140	198	183	209
October	279	298	251	220	282	332	285	394	381	313	301	372	363	394
November ..	486	495	459	402	471	513	483	582	558	525	513	537	525	555
December	574	617	555	481	574	636	574	673	670	623	623	623	611	654
January	605	660	592	512	605	632	598	688	685	632	642	648	636	673
February	540	585	239	473	543	580	538	619	608	680	568	585	568	595
March	524	555	512	481	524	549	536	629	620	567	549	611	583	605
April	387	411	369	366	381	426	399	492	489	429	411	489	441	483
May..	187	222	184	202	203	267	201	307	329	248	227	344	285	338
TOTAL ..	3,695	3,966	3,550	3,223	3,706	4,069	3,727	4,605	4,543	4,070	3,974	4,407	4,195	4,510

* Calculated from monthly average temperature over 30 years.

suit the variations in steam demand as determined by fluctuations in steam flow or boiler pressure. Such variations are used as the impulse to increase or decrease the supply of combustion air and simultaneously of fuel to the furnace. Secondary impulses are used to limit the amount of excess air and to maintain a standard pressure in the combustion chamber. The whole process is automatic, but manual controls are provided for permanent adjustments to cover changes in the quality of the fuel, etc. The important point about automatic combustion control is that within the limits of the steaming capacity of a boiler it is capable of meeting fluctuations in steam demand with much closer regulation of steam pressure than is possible with manual control, while at the same time it cuts down the amount of excess air, which can represent a substantial thermal loss, especially where the steam demand varies and where reliance is placed upon the fireman for the adjustment of fuel and air supply.

Fig. 4 gives a schematic arrangement of an automatic control system.

Automatic Control with Solid Fuel

Automatic combustion control is, of course, ideal where the fuel is consistent in quality—*i.e.*, liquid or gaseous—and this partly explains its prevalence in American steam-raising plants. In Britain solid fuel is almost universal, and in spite of the inconsistency inherent in coal the wider use of automatic control is strongly advocated as one of the most important means of saving coal in the boiler-house.

With solid fuel firing and dependence upon the quality of the fuel, there are, of course, certain conditions which demand the attention of the fireman whether or not automatic combustion control is employed. These include mass clinker formation in the fuel bed, the dropping on to the fuel bed of large aggregates of solid deposit from the heating surface in water-tube boilers, etc. But these do not alter the general contention that the wider use of automatic combustion control in British industrial plants would effect substantial economies.

In considering CO_2 meters and recorders there is one class of instrument that appears to have been more widely developed in Britain than in the United States, and that is the electrical thermal type. It has proved highly satisfactory as a boilerhouse instrument and has the advantage that it does not involve the use of chemicals. Its principle is widely used in both countries in techniques other than gas analysis.

Need for Oxygen Meter

In flue gas analysis generally, the determination and recording of CO_2 is useful only by inference as indicating the amount of excess air used in combustion. This being so, it would be of considerable advantage if a reliable oxygen meter or recorder were available, since this would give a direct reading of the percentage of excess air. Apart from this, for a wide variety of fuels from coke oven gas through natural gas and the different coals to wood, with a given amount of excess air the oxygen content of the flue gas is nearly constant, regardless of the fuel, whereas the CO_2 content varies over a wide range.

This feature of oxygen determination in flue gas analysis is, of course, most useful where different fuels may be consumed in the same boiler. In the States several oxygen meters have been developed, and there is a similar movement in Britain. Certain of these instruments depend upon the catalytic-combustion principle, using a standard fuel to consume the excess oxygen. Oxygen content in the gas sample is ultimately related to the temperature attained by the catalyst filament. The general impression gained in the United States was that the oxygen meter is not yet sufficiently developed for acceptance as a standard boiler-house instrument. It is, however, being employed for specialised purposes. At the moment it is costly.

Portable Instruments

A number of portable instruments have been developed by one of the fuel interests in the States for the purpose of determining the total heat loss in waste gas. These combine gas analysis and temperature measurement in a

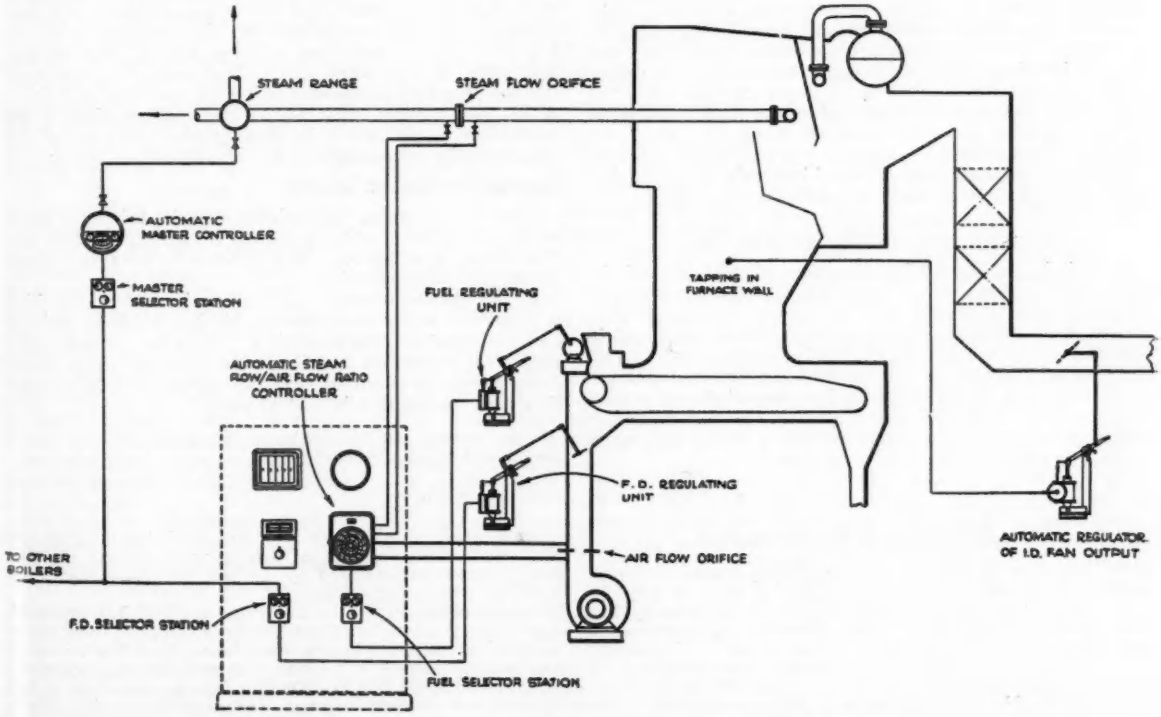


Fig. 4.

Schematic arrangement of automatic boiler control system applied to a small industrial stoker-fired boiler. Variation in steam pressure effects variation in firing rate by readjusting the forced draught. Combustion chamber pressure is maintained at a constant value by readjustment of the induced draught. Fuel bed continuity and combustion efficiency are maintained by the relationship between steam flow output and the rate of flow of air to the stoker.

most compact form, and are used to determine flue gas loss in boilers, waste gas loss in industrial furnaces, and exhaust loss in internal combustion engines. The instruments are the result of many years of practical research work in the laboratory and in the field and are not as yet available for general use. In certain circumstances, however, they can be made available for research. A somewhat similar development is taking place in Britain, but mainly with the object of providing a permanent boilerhouse instrument to show the total stack loss based on simultaneous flue gas analysis and flue gas temperature measurement.

Detecting Excess Air

Minimum requirements include the measurement or recording of steam flow, steam pressure, draught, and flue gas temperature. By far the most important instrument from the point of view of fuel economy is, however, that which indicates or records combustion efficiency in terms of the amount of air used per lb. of fuel consumed, whether this takes the form of a CO_2 meter, an excess oxygen meter or a combined steam flow/air flow meter.

As an illustration, a good-quality bituminous coal theoretically requires about 9.0 lb. of air per lb. of fuel for complete combustion, a condition which it is impossible to achieve in practice. A well-operated coal-fired boiler may, however, be expected to consume about 35% more air than is theoretically required (i.e., 12.2 lb. per lb. of coal), in which case the CO_2 content of the flue gas would be about 14%. The point is that in a great many boilers in Britain the CO_2 content of the flue gas is of the order of only 6% (sometimes lower), which corresponds to over 200% excess air or close upon 30 lb. of air per lb. of fuel. In a Lancashire boiler *without* an economiser, of which there are many installations in Britain, increase in CO_2 from 6 to 14% obtained by improving combustion would reduce the coal consumption by half. In a Lancashire boiler *with* an economiser the same change in CO_2 would reduce the coal consumption by one-third.

Putting the argument in a different form, a single Lancashire boiler may consume 1,600 lb. of coal an hour. Run inefficiently with, say, 160% of excess air (between 7 and 8% of CO_2), which is common, this means that about 10 tons of excess air pass through the boiler *every hour* and this air is raised from atmospheric temperature to somewhere between 500° and 1,000°F. in the process. All this heat, which is uselessly discharged up the stack, represents an unforgivable waste of fuel on a grand scale. Its repression—and this is a straightforward technical problem—might reduce the consumption of industrial steam-raising fuel by as much as 10 mill. tons of coal per annum.

COAL AND ASH HANDLING

In Britain the mechanical handling of coal and ash in small boiler plants is the exception rather than the rule, whereas in the United States the reverse is true. A wide choice of mechanical equipment is available there and is installed on even small plants burning only a few tons of fuel a week. Less labour is required and boiler attendants have more time to devote to efficient operation and proper maintenance. The elimination of dust and dirt from the boilerhouse boosts moral and attracts a better and more intelligent class of labour.

Equipment of this kind, properly chosen, cuts operating costs, and the investment can often be recovered in a few years, after which the savings and other advantages which cannot be related to £ s. d. continue for the life of the plant. Too long have shovels and wheelbarrows, dust and dirt been the companions of the small industrial boiler plants in Britain, and although mechanical firing has made great strides in the last decade its full benefits have not been realised because of the failure to introduce at the same time mechanical handling of coal and ash.

Elimination of Dust and Dirt

Coal producers in the States, faced with the competition of refined fuels (oil and gas), have been forced to pay greater attention to the elimination of dirt and dust in the operation of coal-fired boiler plants. They have, through their organisation, Bituminous Coal Research Inc., sponsored a number of research programmes carried out by the Battelle Memorial Institute to improve the operation of small coal-fired boilers.

On its visit to Battelle the Team saw some of this work being carried on and inspected a small coal-burning plant mechanically fired and equipped for the mechanical handling of coal and ash. The absence of dust and dirt was noteworthy, primarily because of the totally-enclosed coal-handling system and particularly the use of a pneumatic system for ash disposal.

In discussion with research workers and industrialists the point was stressed that the selection of mechanical handling equipment depended to a large extent on the nature of the boiler load.

For instance, a boiler plant supplying steam to hospitals, factories and such like and operating on a round-the-clock schedule would justify the installation of the fullest possible mechanisation with automatic controls, owing to the high load factor. On the other hand, in boiler plants supplying steam only for space heating the installation of equipment on the same scale would not be justified. There are, however, factories and premises where cleanliness is essential—e.g., hospitals.

The equipment used in current American practice where the suppression of dust and dirt is imperative is not very different from that available in Britain, but from what the Team saw on its inspection of boiler plants it was obvious that more care is taken in the design of American coal and ash handling equipment to ensure dust-free operation. It was also noticed that the starting and stopping of the coal-handling equipment in many plants was carried out automatically according to the demand of the boiler.

Standardisation of Design

The Team formed the opinion that in Britain a study should be made of existing designs of mechanical coal and ash handling equipment with a view to obtaining some degree of standardisation.

In the States the capital cost of equipment of this kind is relatively lower than that of similar plant in Britain, owing largely to standardisation. There is a considerable market in Britain for machinery of this kind which manufacturers could profitably exploit, particularly in connection with the smaller industrial plant.

(To be continued, with our abstract of the section dealing with "Cost of Smoke".)

Steel Corporation Accounts

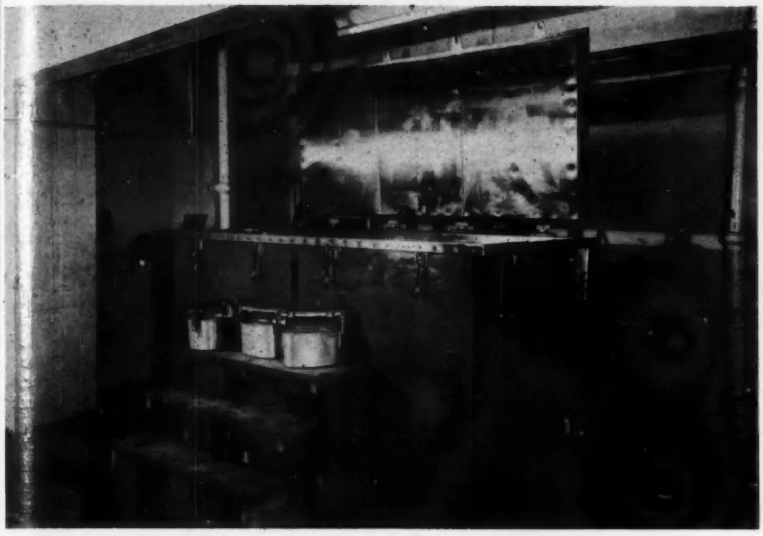
FINAL accounts of the Iron and Steel Corporation of Great Britain, in respect of the period October 1, 1952, to July 12, 1953, reveal that the Finance Corporation for Industry has been paid £2,250,000 by the Iron and Steel Corporation as compensation for loss of option rights on the equity capital of steel companies which were nationalised on February 15, 1951. The accounts are now with the Minister of Supply.

At March 31, 1952, outstanding advances by the F.C.I. to these companies totalled nearly £40 mill. Attached to the advances were valuable conversion rights which in the case of the Steel Company of Wales, Ltd., alone were up to £10 mill. in the equity of the company. Negotiations to assess the compensation due to the F.C.I. under the Iron and Steel Act, 1949, have been in progress since July, 1951.

As a result of this year's Iron and Steel Act the Iron and Steel Corporation ceased to exist as from August 13. The final accounts, as required by the Act, are concerned solely with the corporation's finances.

Income of the corporation amounted to £4,192,379, representing dividends and interest received or accrued from subsidiary companies. After deducting expenditure, Steel Stock interest, and tax, net income was £330,461 to raise the unappropriated surplus at July 12 last to £720,989. The balance-sheet at that date showed the book value of share and loan capital in subsidiary companies at cost as £252,287,603, iron and steel stock stood at £243,593,077, loans and amounts owing by the companies to the corporation totalled £59,603,982, amounts due to subsidiary companies totalled £40,121,711, and bank loans to the corporation, guaranteed by the Treasury, stood at £30,300,000.

Ham Cooking



THE installation of these two ham cookers at the Hosier Lane premises of I. Beer & Sons, Ltd., wholesale provision merchants, is one of the first of its kind in the area of the North Thames Gas Board. Each cooker, made by W. J. Hubbard & Sons, Ltd., 7, Occupation Road, London, S.E.17, incorporates gas-heated immersion tubes, which are a recent development in large cookers of this type. Previously this type of cooker in this size was heated by steam, but the introduction of this burner equipment has opened up the commercial and competitive possibilities for gas in this specialised sphere of wholesale cooking.

With the Hubbard 100P ham cooker, 100 boned hams, each weighing approximately 11 lb. boned, and encased in the special presses shown in our illustration are immersed in cold water in the cooker. After lighting the burner, with the lighting poker provided, and with the cooker lid open, in order that temperatures may be taken, the cooker contents are brought to a required cooking temperature of about 180°F. in about 1-1¼ hours from time of lighting. As soon as the required cooking conditions are reached the insulated cooker lid is clamped down and the gas burner is turned off. As a result of the heat conservation in the cooker, due to the effective insulation, the cooking process is completed over at least 9 hours or so during the gradually falling temperature of the container.

Advantages of this flexible method of working are:—

(i) A batch of 100 hams may be cooked overnight during the absence of the operatives.
(ii) No supervision or control required.
(iii) No gas consumed for simmering.

Experience has shown that the required cooking conditions can be reached for a gas consumption of 6.25 therms and that throughput for each cooker is approximately 200 hams each 24 hours.

The Hubbard 100P ham cooker measures internally 92 in. long, 42 in. wide, and 34 in. deep. The rectangular container is made of monel metal with the sides and bottoms heavily lagged with a mineral compound, surrounded by a sheet steel outer casing enclosed in mild steel angle iron. The counter-balanced lid is stainless steel and is fitted with screw-down clamps.

The time factor, which is so important in this cooking process, has governed the design and gas rate of the burner equipment. This consists of neat pin-hole jets firing horizontally into a combustion chamber and then through three 3-in. U-shaped horizontal galvanised mild steel tubes immersed in the bottom of the container and returning to a flue manifold at the same end as the burner and connected to an extract fan discharging into a flue duct.

A 'Thermoperl' flame failure device operates a Keith Blackman cut-off switch which is connected by push-button control to the flue extract fan. The 'Thermoperl' is held open by a permanent pilot allowing gas pressure to be communicated to the cut-off switch which makes electrical contact and allows the fan to be switched on manually by push-button starter. The suction thus provided in the flue is transmitted by the suction pipe to a modified compensating governor, working as an air-operated gas valve which opens and allows gas to pass to the main burner gas cock which is manually operated.

A gas-fired water heater which provides hot water at 150°F. for cleansing the presses and the equipment which is used in the production of the hams.

The Institution of Gas Engineers has published the presentation, discussion, and reply editions of Communication No. 409/200—'Technical and Economic Aspects of the Gas Supply to Four New Towns,' by W. A. Evetts, and Communication No. 416/206—'Manufacture of Butane-Enriched Blue Water Gas on Small Undertakings,' by E. Johnson. Copies are now available from the Secretary of the Institution at the cost of 1s. 6d. a copy, post free inland.

Building Exhibition

THE complete fuel service which the gas industry can give in the modern home will be the theme of the Gas Council stand at the Building Exhibition, Olympia, from November 18 to December 2. It will feature models and plans of leading housing developments in all parts of the country, including the new towns, modern estates, large blocks of flats, and their adjuncts, community centres, schools and communal laundries. The exhibits will show, in addition, the use of gas for laundry, water-heating, space-heating and refrigeration, and of coke appliances—open fires and continuous burning stoves.

Emphasis will be placed on the improvements in the design and performance of appliances, which have made considerable economies possible in the consumption of both fuels, and on the labour saving and thermal efficiency which the use of gas and coke achieves.

French Gas Association

(*Continued from p. 589, Sept. 2*)

IN our issue for last week 'Ashton,' reviewing the 70th Congress of the French Gas Association in Nice, dealt with eight papers in the gas manufacture group. This week he continues with nine contributions which might be bracketed under the heading of technical control.

C.V. of Natural Gas

M. Jean Verrien, of the Laboratory of the Régie Autonomes des Pétroles, pointed out that the crude natural gas of Saint-Marcet is treated with the extraction of propane, butane and gasoline; it is the residual gas which is distributed in the S.W. of France. This gas is composed of methane, ethane and propane with a very small proportion of the higher homologues of butane (which can be neglected) and practically no nitrogen. It is shown mathematically and confirmed experimentally that the gross calorific value of such a mixture is proportional to its specific gravity. It is therefore possible to substitute the measurement of this quantity, which is relatively easy, for that of the direct determination of the calorific value.

Density and Viscosity Measurement

M. Jacques Heller, Engineer to the Industrial Physics Section of the Department of Research, Gaz de France, presented this paper. The Schilling method for the determination of the density and viscosity of gases consists in measuring successively the rate of flow of equal volumes of air and gas under equal pressure through the same orifice for density and the same capillary tube for viscosity. The Schilling apparatus in current use gives correct results for town gas but with other gases leads to errors sometimes quite considerable.

The study of flow through orifices and capillary tubes showed the importance of the Reynolds Number. The success of the Schilling apparatus is due to the fact that the Reynolds Numbers of air

and of town gas are the same. With other gases one can, by using an appropriate tube and orifice, render the error negligible in the case of viscosity and establish a table of corrections in the case of density.

The practical realisation of these conditions led to the use of a "gazomètre" (a balanced bell) maintaining a constant pressure. The apparatus constructed in the laboratory is comparable with that of Schilling as regards overall size and time required for tests. Its precision could be improved. As it stands, the accuracy achieved is of the same order for all gases as that given by the Schilling apparatus with town gas.

Orsat Adapted for all Types of Gas

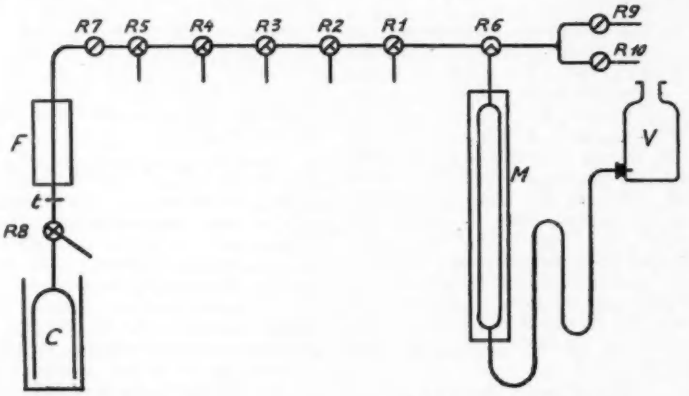
This paper, by M. Renaudie, Chief of Chemical Research, and M. A. Marianvalle, Research Engineer, Gaz de France, is obviously one of considerable importance, one which should be studied in detail by laboratory chiefs in the Gas Industry. It is a full account of extensive trials and experiments with several types of absorbers and absorbants which can be used in this type of apparatus, rendering it quickly and accurately applicable to all types of town gas (as well as waste gases and producer gas), including those petroleum products (propane, etc.), tail gases, and natural gas the use of which is rapidly extending not only in France but in Britain and elsewhere. We can only touch on some of the salient points here.

The object of the authors was so to modify the construction and operation of the Orsat as to render it more widely applicable as mentioned above, while keeping the time of a complete analysis to not more than 30 minutes, and to accompany this with a substantial improvement in overall accuracy.

The modifications suggested fall under two headings—details of construction and mode of operation. Reduction of error is secured by reducing either the effect of dead space by a preliminary purging with nitrogen, or the dead space itself by a novel arrangement of the tap-rail, shown in the above diagram.

Subsidiary solution of constituents is avoided or substantially reduced by the use of an aspirator liquid in the form of a concentrated solution of calcium chloride instead of the usual acidulated water, and by the use of two different types of absorber—the contact type with wetted tubes or balls for the rapid reactions (CO_2), and the bubbler for the slower reaction of CO.

For the absorption of CO_2, the concentrated solution of caustic potash is preferred to soda. For the non-saturated hydrocarbons some alternatives are suggested; the general recommendation is an 80/20 mixture of sulphuric and nitric acids. For CO, two absorbers (bubblers) each containing very fresh copper chloride in hydrochloric acid are recommended, but the possibility is also suggested of determination by combustion with the hydrogen at the same low temperature. For hydrogen and the saturated hydrocarbons combustion is used, with the suggestion that a heat-resisting metal tube (such as a nickel-chrome steel) is better than the silica tube; with heating preferably electric to give a better control of temperature. It is further suggested that the nitrogen figure with all its accumulated errors might be checked by taking a second sample of gas, making a direct combustion with absorption of the CO_2 produced.



R1 - R5, three way taps.
R6, tap with 2 ways at right angles.
R7, 9 and 10, ordinary taps.
R8, tap with 3 axial ways.

The paper closes with a brief reference to further work in contemplation, some of it directed to the determination of such additional gases as helium, the proportion of which in petroleum gases is not negligible, and to the "soap-bubble" technique which is also in use for some purposes.

Recuperation and Waste Heat Recovery

M. Paul Girard, Engineer to Gaz de France, has made a theoretical study of the several systems of recuperation and waste heat recovery. The following is M. Girard's summary of his paper.

At the moment when the gas turbine is coming into industrial practice we have sought to assess its position in the general scheme of waste heat recovery. A general calculation, taking account of the efficiency of the several parts of the apparatus, shows that it is preferable to return the maximum number of calories to the settings, and to produce steam and power in independent generators. At the same time it is advisable to utilise as far as possible calories which it is difficult to reintroduce into the thermal circuit.

Taking the average consumption of steam and power per ton of coal carbonised, the following conclusions are reached.

The sensible heat of the products of combustion is sufficient to preheat the secondary air and cold producer gas with nothing to spare. If hot producer gas is used, waste heat recovery covers, after heating the secondary air, the steam requirements of the works. But this equilibrium is difficult to maintain. Steam requirements vary considerably in different works; it is not possible to give rigid rules. Dry quenching of coke may supply either steam or power, in both cases with some margin (excluding gas compression for transport).

The steam turbine presents the advantage of flexibility—using only one fluid for all needs. The gas turbine may, however, be of interest in some cases. Its technical evolution and research into its possible applications should therefore be pursued.

Finally, still in the region of waste-heat recovery, the preheating of primary air from the sensible heat of producer gas offers a noteworthy economy (of the order of 7%) in the fuel consumption of settings with "double recuperation."

Other Papers

(*a*) Notes on the calculation of calorific values, gross and net, of coal and related cokes, from the data of industrial analysis (content of moisture and ash and volatile matter evolved at the standard test temperature), by Lefebvre and Montagne.

(*b*) A comparison of the evolution of gas, etc., from two selected coals at successive temperatures, by André Boyer of the Coal Industry.

(*c*) Application of the method of continuous weight recording to the study of coals under progressive heating, by Boris Vdovenko.

(*d*) Quantitative microscopic study and graphical representation of the cellular structure of some cokes, by Boris Alpern.

(*e*) A discussion of the question: 'Is it possible to standardise the determination of the reactivities of combustible solids?' by Henri Guérin, Jean Adam-Gironne, and Lucien Hosti.

In the last-named paper the authors examine in detail the difficulties which arise in the determination of the reactivity of carbon to carbon dioxide using certain forms of carbon, on the one hand from the variation of carbon reactivity as a function of time, and on the other from perturbations caused by the phenomena of diffusion. It was hoped that a study of these phenomena would lead to a laboratory test, itself leading to a classification of combustibles in given apparatus and therefore capable of standardisation. Success is not yet achieved.

(*To be continued.*)

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and finally the

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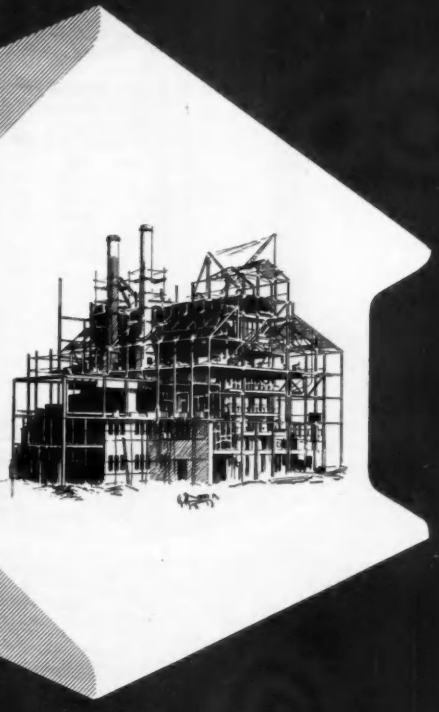

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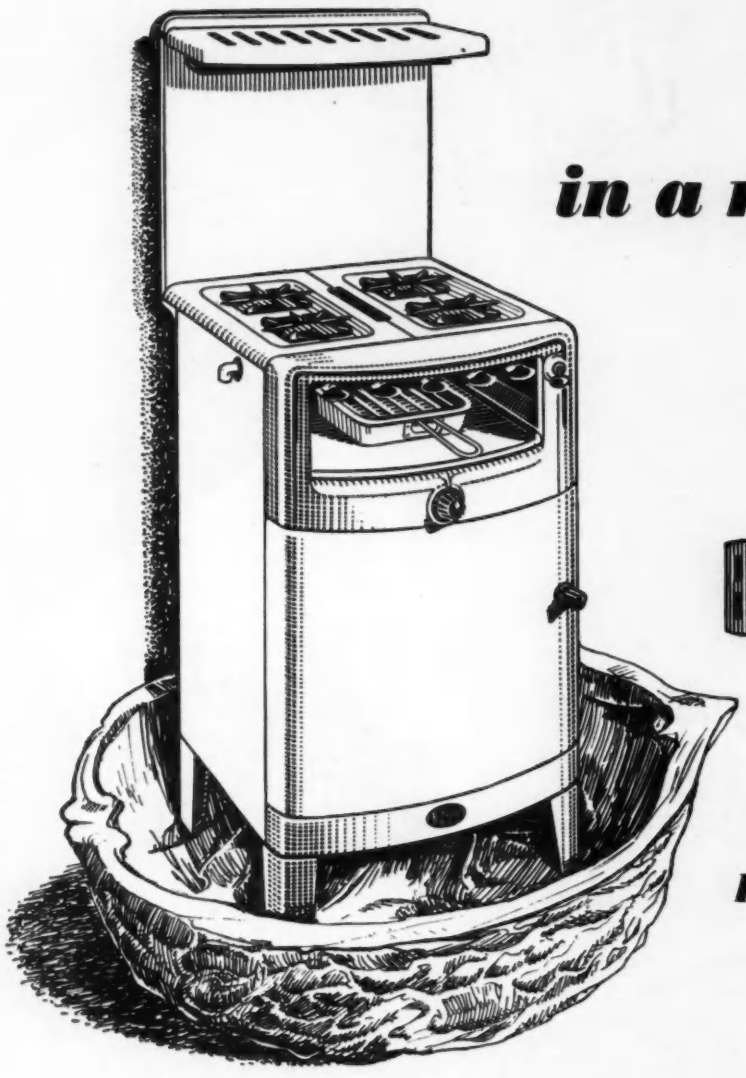

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THE ENGINEERING, MARINE, WELDING AND CHEMICAL PLANT EXHIBITION

OLYMPIAN JOURNEY

THURSDAY, September 3, was a day of triumph for the paraffin lamp. Dozens of them shed their soft light in the gloomier corners of Olympia when the Engineering Marine, and Welding Exhibition opened. Deprived of electricity other than for the 'house' lighting, by the electricians' strike, exhibitors were faced with a serious handicap. Hundreds of pounds worth of lighting fittings for stands lay, still crated, in odd corners. Many exhibits which were dependent on electricity for their effective display, had to do without; among those affected oddly enough, was the Gas Council. But the will to overcome difficulties was strong and nobody seemed very dismayed by this ill-timed action. The bulk of the exhibition was adequately lit by daylight and by the hall's ordinary lighting service. Only at the end of the day was any real handicap felt and then, as we have said, paraffin lamps helped to dispel the gloom.

Atmosphere of Intimacy

During our visit we did not concern ourselves with a careful inspection of all exhibits. The detailed aspect had already been dealt with in the special supplement to last week's *Journal*. Instead we were in search of novelty and a savouring of the general atmosphere. The latter turned out to be surprisingly good. It was more intimate and more lively than the B.I.F., despite the fact that things had not really warmed up on opening day. Almost all the stands were finished—no mean feat in view of the chaos which met our eyes when we peeped in the previous day—and the difficulties imposed by the strike seemed to have produced a do or die attitude on the part of the exhibitors, a determination to make the show a success at all costs. Indeed, for some exhibitors the strike brought with it a fine opportunity. Certain electrical generating firms produced their own power supplies, and an added interest was taken in the remarkable industrial gas turbine of Ruston and Hornsby, Ltd., which was being run on load to supply electricity for much of the exhibition lighting, for ten hours a day. To see this exhibit we had to leave the Grand Hall and make our way out, through a flapping corridor of green canvas, to stand 5A. The turbine, which generates 750-1,000 kW, is surprisingly compact.

In the Grand Hall itself there was much to see. The eye was drawn to Stewarts & Lloyds' fine stand where busy executives could be seen holding parley in a timber cabin supported between floor and ceiling. This 'half way to Heaven' idea, is becoming increasingly common at exhibitions. It has the advantage of providing space at two levels, provides a landmark, and no doubt enables representatives to spot approaching clients from afar. An even better example of two-storey stand is to be seen in the National Hall; it belongs to the Brush Group.

Another eye catcher was the demonstration by Pilkington Brothers, Ltd., of the strength and flexibility of 'Armourplate' glass by oscillations of a 7 ft. high 'inverted pendulum.' We also liked the three witches and cauldron sculptured in metal on the Henry Wiggin stand. But perhaps the most fascinating sight of all was the diver cutting metal in a great tank on the Siebe Gorman stand.

However, enough of the novelties. Suppose we consider some of the broad families of equipment on view. Take mechanical handling, for example. On Ransomes, Sims & Jeffries stand we watched a gentleman happily going round in small circles on one of their 'Forklift' trucks and admired the almost completely silent lifting device. On the stand of Tangyes, Ltd., we saw a new type of hydraulic jack, the outstanding feature of which was its light weight; a hydraulic jack, capable of lifting a dead weight of 15 tons weighed only 24 lb. A rapid hoist incorporating a special overload feature which gives added security to the operator, was an interesting new product noted on the Felco Hoists, Ltd., stand.

Pipes and valves were well represented by Audley Engineering, Stewarts & Lloyds, and on the Accles & Pollock stand we saw small precision tubes with an outside diameter of less than a human hair; this company also showed small, thick-walled high pressure tubes for research work on gases, one of which with an outside diameter of $\frac{1}{8}$ in. and a bore of $\frac{1}{16}$ in. had been tested to 20,000 atmospheres. The Yorkshire Copper Works, Ltd., had four main displays dealing with 'Yorkshire' tubes in the marine field, for power stations, for refrigeration and air-conditioning plant, and for oil refineries; an interesting range of fittings were also on show. Those interested in tube bending can find plenty to interest them on the Hilmar and Lawler Ayers stands.

Welding equipment lends itself to demonstration and we watched with interest the operation of the products of Murex, Lincoln Electric, Fusarc, British Oxygen, A. R. O. Machinery, and others. This was in the Empire Hall.

Impressive Models

One of the features of the exhibition is the number of models used to illustrate large plant. Some of these were made by Mash Engineering Models, Ltd., among them the impressive 28-ft. diorama of an industrial town built for Babcock & Wilcox, which includes an excellent gasworks. This display piece which took four months to complete can be viewed from two storeys. Another Mash model is of a stocking-frame, stocking-tower, six purifying towers, oxide-handling plant, etc., built for Newton Chambers & Co., Ltd. This company also displays a model of a continuous tar distillation plant.

Our eye was caught by the name Cannon—a name well known in the gas industry for cooker design. But we found that in another field Cannons have brought out a development as remarkable as the eye-level grill. This is a steam-jacketed mixing pan which has been made independent of auxiliary power for driving the mixing gear. The new propulsion unit, which operates by tapping the steam already on the job, is adaptable to existing plants.

The Chemical Plant Exhibition, the first exhibition to be staged by the British chemical plant industry since the end of the war, is full of interest. The firms participating can be divided into a number of sections. First, there are those firms who design, supply and erect complete process plant or who, in co-operation with their customers, engineer large plants or sections of them. Second are the manufacturers of plant for unit chemical engineering operations such as distillation, evaporation, drying, etc.; and thirdly, there are the fabricators of plant in an ever-widening range of constructional materials; and finally, the suppliers of ancillary equipment. All are represented and they put up a fine show. We liked the writhings and wigglings of glass on the James Jobling stand and the very pleasing—æsthetically as well as industrially—acid proof jar of 440 gal. capacity shown by Royal Doulton. Dominating this section is the A.P.V. distillation column which will form part of a complete continuous tar acid distillation plant for the North Thames at Beckton.

D.S.I.R.

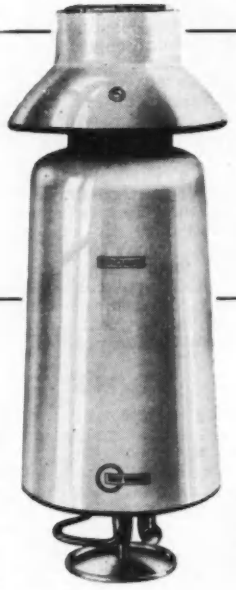
Creating a pleasant diversion and scorning electric propulsion was the Crossley atmospheric gas engine of 1866, whose cheerful rattling and popping drew visitors from afar. This made us think of progress generally and research in particular. Accordingly, we sought out the stand of the Department of Scientific and Industrial Research which showed some of the work being carried out by research associations in the U.K. We found a small experimental plant illustrating the work which is in progress at the Fuel Research Station on the synthesis of liquid fuels and chemical products from coal by the Fischer-Tropsch process and, of even greater interest, a transparent working model showing how coal can be transported hydraulically through pipelines. In this plant coal passes through a mechanical feeder situated in the mine, working into a vertical pipe, and is raised to the surface by upward flowing water. The model components were approximately one-eighth full size and were circulating nearly 10 cwt. of coal per hour.

The exhibition was extraordinarily rich in pumps—pumps for every conceivable purpose. For example, the Comet Pump & Engineering Co., Ltd., not only have a pump pumping hitherto unpumpable grease, but pumps pumping overcoats and electric light bulbs. (The last sentence may be used as a test for sobriety.) Other exhibitors in this class whom we noticed particularly were Zwicky, Wilkinson Rubber Linatex, Sigmund, Hamworthy, Sir George Godfrey & Partners, and Saunders Valve. The last-named company had the bright idea of using their valves to form a crown.

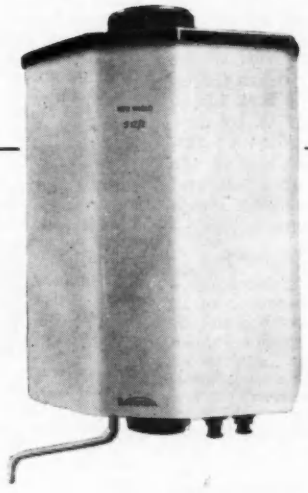
Also well to the fore was control and test equipment, the manufacture of which is steadily increasing. We noted photo-switches which break the contact when a solid body is placed between the light source and the switch, photo-electric temperature controllers for providing automatic control of resistance welding and heat-treatment processes, infra-red equipment for giving immediate fuel cut-

(*Continued on p. 664.*)

Take the MAINTENANCE



The CIRCULYN C.12S



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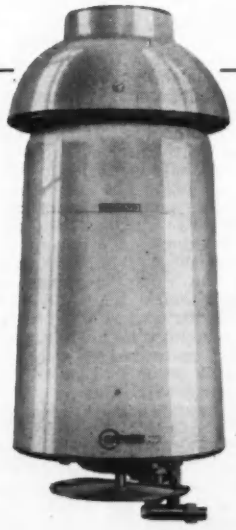

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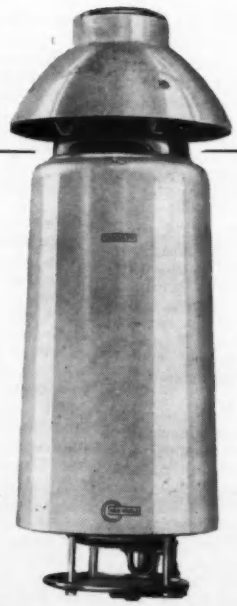

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CONSULTATIVE COUNCILS

Southern Area Seething with Activity

New Chairman's First Impressions

LIEUT-COL F. C. REA, O.B.E., who has succeeded Alderman J. W. Moore, C.B.E., as Chairman of the Southern Gas Consultative Council, was introduced to the members at their meeting at Reading on September 2 by Councillor Mrs. A. E. M. Oliver, M.B.E., Deputy Chairman, who had acted as Chairman during the interregnum. He told the Council that he had taken an early opportunity of spending some hours with Alderman Moore, whom he had known in connection with county cricket, and he could well understand the affection in which he had been held by the members.

Since his appointment in July he had studied the records of the Council and had devoted part of his holiday to visiting every major producing plant in the area, in which connection he acknowledged the help he had received from the officials. He had met all the divisional general managers and had found that in addition to the day to day production and distribution of gas they were engaged in major projects for making the supply of gas more efficient and more economical. The entire area was 'just seething with activity.' Before vesting day the tendency in the industry was for various gas companies to amalgamate, and it seemed to him that since vesting day that process had been accelerated at an enormous rate. Whether one called it amalgamation, or integration, or any other 'ation,' it had struck him that but for the Gas Act, which brought about nationalisation, what was now taking place in the way of the co-ordination of gas production and distribution could not have come about.

He paid tribute to the Board and to those engineers who were carrying out those schemes. In some places the price of gas was less than at vesting date. Over the area in general so far as he could see, the price of gas had risen to a lesser extent than the price of its 'ingredients'—coal, labour, and transport.

Men of High Calibre

With regard to senior officials who were advising the Board he thought it was not without interest to the Council to know that one was the present President of the Institution of Gas Engineers, another was a Vice-President of the Institution, and yet another was a member of the Council of the Institution, yet in all of them there was a distinct streak of modesty. Not only were they concerned with their own part in the industry, but they were anxious for the industry's success in general. As a newcomer he had asked them what they thought of the Consultative Council. They appreciated its work and expressed the hope that it would not only deal with criticism and complaints but would pass on to the Board any helpful suggestions that might arise.

At the last meeting of the Council a committee had been appointed to consider industrial tariffs. No meeting of the committee had in fact taken place, partly because it was felt that the subject was too big to be dealt with during the period of a change in chairmanship. A meeting of the committee would be called in the near future and report to a subsequent meeting of the Council.

In conclusion the Chairman welcomed a number of new members of the Council, particularly mentioning the Dowager Lady Nunburnholme, formerly a member of the North Thames Gas Consultative Council, now resident at Winchester.

A suggestion was received from the Chairman of the South Eastern Gas Consultative Council that there should be a general interchange of minutes among all the 12 consultative councils. Mrs. Oliver, who had attended the last meeting of chairmen of consultative councils with the Minister of Fuel and Power, said the matter had been mentioned there and it was felt that it was an idea that should be encouraged.

Members queried whether it was intended that full copies of the minutes of all the 12 councils should be circulated to every member of every council, and the opinion was expressed that the expenditure of time, effort, paper, and money would not justify the results.

The Chairman said a much more simple and practical method of achieving the same ends would be for members to study the *Gas Journal* which reported all the matters of major importance that came before the Councils.

The matter was left in the hands of the Chairman.

Meter Cards

A letter was received from the Gas and Electricity Users' Association 'deploring the action of the Board in abolishing meter record cards.' The comment of the Board was that presumably the communication referred to the Western Division, where there had been no change in the practice which obtained on vesting date, which was to issue meter cards only when requested by the consumer. There had been no decision by the Board to abolish meter cards throughout the area, and in fact the position remained as it stood before nationalisation in that there was no standard practice. Where meter cards had been supplied in the past, this had continued.

Another resolution from the same Association declared that the Consultative Council was failing in its statutory duty unless every representation made to the Council was considered by the Council in full meeting before any views on the representations had been offered by a servant of the Council or of the Board.

Members felt there might be some substance in the resolution, but pointed out that if every little representation had to await discussion in full Council before anything was done there would be much unnecessary delay. It was always understood that in cases where officials cleared up minor complaints all the necessary facts were subsequently reported to the Council for confirmation. It was suggested that a 'badly conceived and badly worded' communication should lie on the table; ultimately it was agreed to ask the Association to explain what was behind the resolution.

The Secretary reported a letter from the Board on the question of hire purchase of gas appliances. The Board had decided that hire purchase facilities should be given to approved domestic consumers for appliances selling at over £3 subject to the terms of the Hire Purchase Control Order which restricts the period of the agreement to 18 months in certain cases. Gas cookers are not covered by the Order, and recently gas water heaters have also been removed from the restrictions. The maximum period for a hire purchase agreement in respect of a cooker is to be five years. A previous decision to ask for initial payments of the difference between £25 and the selling price in the case of appliances selling at over that figure has been rescinded, and the consumer will be asked to pay a first instalment unless special circumstances require a higher deposit. The inclusion of purchase tax, where applicable, and the fixing charge, will be allowed in the hire-purchase agreement. In the case of appliances for industrial or commercial purposes an initial payment of not less than 33⅓% of the selling will be requested before a sale on hire purchase terms is permitted.

It has been the practice of the Council to meet at quarterly intervals, twice per annum at Reading and twice at Bournemouth. It was agreed to hold the next meeting at the Polygon Hotel, Southampton, in December.

Fawley Flame

Mrs. Oliver drew attention to what she said had become known as the 'Fawley flame'—a 70 ft. high flame at the Fawley oil refinery which she understood was burning 'tail gas.' She sought information as to whether any steps had been, or could be, taken to utilise oil refinery 'tail gas' for ordinary town purposes. It was pointed out that in other areas the matter was receiving careful attention. The Chairman undertook to see whether he could get any information as to what the Board was doing about it, but he warned the members that until the economic and technical aspects of the matter had been explored it might be impossible to make any statement.

Freedom of Choice in South East

THE principle of freedom of choice between gas and electricity on new housing estates was the subject of a resolution passed by the South Eastern Consultative Council at its Croydon meeting on Tuesday, September 1. It was stated that electricity had been installed for all purposes on a building estate at Wye, Kent, and this would mean that people coming into the houses with their own gas appliances would not be in a position to use them and that others would be unable to exercise a preference.

Councillor A. B. Constable, Chairman of the Council, told members that the Minister of Fuel and Power had, in the House of Commons recently, quite definitely declared himself in favour of freedom of choice. He had not, however,

e necessary executive power to effect ch a freedom. 'The best and most fective thing we can do is to bring ch of these cases in turn to the notice the Ministers and Members of Parliaent, and hope that it will lead to freem of choice as against all-electric tates.'

The resolution, which was to be rought to the notice of the Ministers oncerned and appropriate Members of arliament, was read to the members: That this Council, in view of additional nformation received since the matter of freedom of choice" was last conidered, with particular reference to a uilding estate at Wye, Kent, within the ast Ashford Rural Council's area, vishes to record its continued concern t the attitude adopted by certain local uthorities in establishing "all electric" states to the detriment of those mempers of the public who have a preference for the use of gas. The Council therefore recommends that the Ministry of Fuel and Power and the Ministry of Housing and Local Government give this matter their attention and careful consideration, as a matter of urgency.'

During the consideration of the venue for future meetings, Councillor Lt.-Col. T. H. Newey told the Council: 'So many people think that Consultative Councils are mere puppets of the Boards that we should get away from the Gas Board offices. London would be the best place, and that would free us from any suspicion.' The Council agreed to meet next in London.

A resolution that instructions should be re-issued to ensure that the public are adequately informed by showroom staffs on simple hire and hire purchase was the result of a letter from a Catford consumer who complained that as she was informed the Board did not supply cooking stoves on ordinary hire, she entered into a hire purchase contract, resulting in some inconvenience later. The showroom assistant concerned insisted that she had specified a certain make not available on simple hire. The argument was that he should have informed the consumer that other cooking stoves were available on these terms.

The Chairman, while urging members not to judge the case without the full facts, said that this was the third case where it had been the employee's word against the consumer's. In the other two cases, his personal opinion was that the consumer had been right and the employee wrong.

During the course of the meeting, the Secretary of the Council, Mr. E. Wood, was congratulated by the Chairman on his completing 42 years' service in the gas industry.

East Midlands Negotiating for Wolverton Works

NO further developments in the negotiations between the East Midlands Gas Board and the Railway Executive for the purchase by the Board of Wolverton gasworks were reported at the Nottingham meeting of the East Midlands Gas Consultative Council on September 1.

Alderman C. R. Bates (Chairman) said further information was being awaited. He assured Capt. J. F. Richardson (Spilsby) that no matter how long negotiations were prolonged, the Council would not drop the matter.

The Council resolved to request the Board for a report on the position to date.

Previously it had been stated that the Wolverton gasworks, owned by the British Transport Commission, did not vest in the Board under the Gas Act, 1948, and the Commission was not compelled to sell to the Board. Transfer could only take place by mutual consent.

It is understood that the original offer of the Board for the purchase of the undertaking, based on historical costs, had not been accepted by the Railway Executive, who had suggested a price more than double the Board was prepared to pay. In order that the Board might give further consideration to the possible purchase, the Railway Executive had recently agreed to the Board carrying out a technical survey of the works and the district.

If agreement to purchase was reached, the Board would hope, within a space of three years, to provide Wolverton with a bulk supply from Northampton.

Alderman Bates explained that at a meeting of the Special Purposes Committee, the Chairman of the Board (Mr. Sydney Smith) stated that an approach had recently been made to the North Eastern Division, National Coal Board, with regard to the purchase by the Board of Denaby Main gasworks. The Board had been informed that the valuation of the undertaking between the N.C.B. and the old owners had not yet been determined, although this was expected to be dealt with shortly. In the circumstances, the N.C.B. did not wish to open negotiations for the transfer of the undertaking until the valuation had been determined. Alderman Bates added that this was how the matter stood to date.

In reply to a question, Alderman Bates said these two undertakings were only those left who did not vest with the East Midlands Gas Board.

Because of persistent efforts by the Council over a period of five years, the Welbeck Colliery Village, in Nottinghamshire, is to be given a gas supply. In their efforts during this period, the Council created history by being the first to appeal to the Ministry and question a decision of the Gas Board.

Alderman Mrs. R. Hodson has been appointed Deputy Chairman of the Council for a further period of two years.

In accordance with the Gas (Testing) Regulations, 1949, relating to tests made during the quarter ended June 30, it was stated there had been no defects of any kind throughout the Board's area.

North Eastern Bakers Protest

AT a meeting of the North Eastern Gas Consultative Council at Leeds on August 17, members were informed of a letter from the Bradford and District Association of the Baking Industry intimating that the Association had recommended its members to switch over to oil for heating their ovens. The recommendation was made on account of the increased costs of gas and electricity.

Mr. G. E. Currier, O.B.E., Deputy Chairman of the Board, commented that although discussions were taking place, he could not see how they could make any changes in the tariff. The Council decided to take no action on the letter.

On the question of simple hire of gas appliances, it was stated that a letter had been received from a Stanningley, Leeds, consumer suggesting that the Board should follow the example set in the south, where it was possible to hire water heating appliances at a cost of little more than a penny a day. Alderman J. H. Whitaker of Todmorden said simple hire of gas appliances would be a retrograde step, because the Board would lose money. From past experience, he knew that consumers would want to change their appliances whenever they became out of date, and if this happened, thousands of old appliances would be left on the Board's hands.

Mr. Currier commented that although the Board had been opposed to simple hire, he would not like to say it would not be prepared to consider such a scheme for certain appliances.

A consumer hiring an appliance did not tend to take the same care of it as he would his own appliance, or one being bought on hire purchase. The time might come, however, when it would be necessary to introduce simple hire for selected appliances.

A complaint from a Huddersfield consumer was referred to by Councillor F. Higham of Brough. The consumer had taken over certain premises half way through a quarter and had been charged a full quarter's rental, but Councillor Higham thought that the Board was perhaps becoming a 'bit high handed' with its customers. Mr. Currier replied that they were endeavouring to remind their staff that they were the servants of the public, and he promised to look into the complaint.

It was intimated at the meeting that Mr. C. L. Davies would shortly have to give up the secretaryship of the Council, owing to pressure of industrial relations work.

Ennerdale (Cumberland) Rural Council has again refused to meet Alderman Hoy, chairman of the Northern Gas Consultative Council, to discuss the Rural Council's refusal to have gas laid on Council housing estates. When the matter was considered at the last meeting of the Rural Council, the Chairman (Mr. J. Cook) moved that Alderman Hoy should be received but other members pointed out that tenants on the housing estates seemed to prefer electricity, and in any case, it was stated, trouble had been experienced with gas pressure. Of the 15 councillors present, only three voted in favour of receiving Alderman Hoy.

The Northampton Polytechnic, in its Department of Applied Chemistry prospectus for the 1953-54 session, gives details of part-time day and evening courses in fuel technology, metallurgy, corrosion science, and a chemical plant operatives' course. Commencing on September 29, there is to be a course of 12 evening lectures on refractories, their manufacture, properties and uses. Chemical and metallurgical thermodynamics is the subject of a course of eight lectures to be commenced on September 30. Copies of the prospectus and enrolment dates may be obtained from the Head of the Department at St. John Street, London, E.C.1.

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Janet Jones Abroad

On a flying visit to Nottingham, Miss Janet Jones made a tour of the local Ideal Home Exhibition, and showed considerable interest in the stand of the East Midlands Gas Board, where Miss Eileen Waldock, Home Service Adviser, hearing of Miss Jones' intended visit, prepared some traditional Welsh fare including Bara Brith, Berffro cakes and Welsh cakes.

Miss Jones is the official hostess of the Welsh Tourist and Holiday Board and appeared at the International Eisteddfod as hostess to overseas visitors. During her vacation from Cardiff College, where she is studying music, Miss Jones is making a three months' tour of the British Isles.

The Welsh hostess wears a traditional gala costume of long dark green skirt, cream blouse, and a green and cream brocade overdress. Under the large black hat is a dainty cream cap trimmed with lace.

Miss Waldock, on completion of her training at Nottingham, will take up her duties at Spalding.

This week Miss Janet Jones is in London—it is her first visit to the Metropolis—and the British Travel and Holidays Association is devoting its delightful offices at 64, St. James' Street, W.1, to a 'Wales Week.' On Thursday last, through the courtesy of Sir Alexander Maxwell, Chairman of the Association, we were happy to make her acquaintance at the Association's headquarters. In a short speech Sir Alexander pointed to the importance of the 'tourist industry' as an earner for our country of currency both hard and soft. Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, also had a few words to say on the link between gastronomics and general comfort of the visitor and the services of the gas industry, which in such large measure caters for the hotelier not only in providing controlled heat for cooking but also in affording a clean, adaptable, and efficient fuel for space heating and water heating.

Subsequent to this introduction at 64, St. James' Street, Miss Janet Jones, as the ambassadress for tourism in Wales, was entertained by the Gas Council at luncheon. It was quite an informal gathering, and we hope that Miss Jones, a photograph of whom we published in our issue of August 12 last, is by now wholly convinced that 'Mr. Therm burns to serve.'

Hotelympia 1954

The Hotel and Catering Exhibition opens on January 20, 1954, and continues until January 29. It is promoted by the Hotel and Catering Exhibition (London), Ltd., in association with the *Caterer & Hotel Keeper*, and the *Hotel & Catering Review*. The finest cookery display in the country is promised by Britain's leading chefs who are taking part in 'Hotelympia.'

The 'Salon Culinaire International de Londres,' the major spectacular attraction of the exhibition, is being organized by a committee representing British, French, Italian, and Swiss chefs and caterers. The salon will be 140 ft. long, providing nearly 240 ft. of display tables for competitive classes, and a 26 ft. table d'honneur for work of laureates of previous international cookery exhibitions to be shown 'Hors concours.'

The Navy, Army, R.A.F., and all the women's services will be among those taking part in the competitions, and a special section will be devoted to students of hotel training schools and technical colleges.

'Hotelympia' will have other important features. There is to be a complete working kitchen, a model restaurant, and model licensed bar where catering students will be seen at work under instruction. The range of exhibits embraces all items of kitchen equipment, furniture, fabrics, food, drink, sanitary equipment, etc.; in short, all the requirements of hotels, restaurants, and catering establishments of all kinds.

Long Service Recognised

Many fine records, of which all concerned have reason to be proud, were officially recognised recently during a tour of the Cambridge Division of the Eastern Gas Board by the General Manager, Mr. J. Hunter Rioch. A number of awards and certificates were presented to those who had completed 25 years' employment, or who had retired, the certificates being the first to be distributed in the Division.

At each district a representative assembly of colleagues witnessed the simple ceremony, over which the local manager presided. In making the presentations, Mr. Hunter Rioch conveyed the Board's congratulations on the noteworthy achievements of those who had qualified for the awards, thanking them for their loyalty and devotion to duty during the long period that they had served the industry. Those who had passed into retirement received their gold-framed certificates with the hope that good health and happiness would be their portion for many years to come. Presentations were made as follows:

Bedford.—Retirement certificates to C. Allen, G. E. Deer, G. Hulatt, M. Jeffs, W. C. Litchfield, and W. T. Woods; 25 year certificates to F. G. Manton, and F. W. Sharp.

Peterborough.—Retirement certificate to A. Bright; 25 year certificates to H. Stockdale and L. F. Reedman.

Huntingdon.—25 year certificate to W. A. Hawes.

Newmarket.—Retirement certificates to E. A. Halliday and R. Sharp.

Ely.—Retirement certificate to W. J. Taylor.

March.—25 year certificate to W. J. Cannon.

St. Ives.—25 year certificate to S. L. Jarvis.

Royston.—Retirement certificate to H. Hawkes and E. T. Law.

Cambridge.—Retirement certificates to F. T. Moore, J. F. Symonds, A. Turner, and H. W. Clarke; 25 year certificates to J. Kellock, J. E. Gee, and W. D. Robinson.

OLYMPIAN JOURNEY
(continued from p. 657)

off on flame failure in furnaces—all on the Elcontrol, Ltd., stand. Photo-electric equipment for a wide variety of purposes was also to be seen on the Lancashire Dynamo Electronic Products stand, and Evershed & Vignoles showed us a new five thousand volt mains operated insulation tester in which the usual hand generator has been replaced by a static rectifier, operating from A.C. mains in conjunction with a step-up transformer.

Exhibits were not entirely of an industrial nature, we found. Business efficiency equipment was well represented, and we were shown on the Steel Equipment Co., Ltd., stand an interesting new locker which is not yet on the English market. It has been supplied in large quantities to Canada.

Our visit was full of interest and sometimes of wonder. Who, for example, uses those flower-decked and imposing branches of our national banks? They always seem to be empty. Another thing we would like to know is when somebody is going to invent a short, simple, and comprehensive name for this exhibition.

[The photograph on S.8 of the *Journal* of September 2 was of the Fraser patent water-tube boiler, two-pass, horizontal drum type.]

Company News

B.H.D. ENGINEERS

The fifth annual report and accounts of B.H.D. Engineers, Ltd., covering the year to March 31, 1953, show a trading profit of £135,873 against £140,420 for the previous year. A final dividend of 10%, making 15% for the year, plus a bonus of 2½%, leaves a carry-forward of £40,083 against £41,480 brought in. Mr. F. Brian Holmes, who was appointed Chairman following the sudden death of Mr. D. M. Henshaw, points out in his statement circulated with the accounts that the profit of the group, before charging taxation, was £436,943 compared with £383,927 in the previous year, showing an increase of £53,016. Taxation totalling £298,595 absorbed 68% of this profit. Total capital and reserves increased by £115,584 to £1,081,457. This increase was invaluable in helping to finance the capital development programme. This programme resulted in an outlay of £210,080 during the year on new buildings, plant and equipment, making a total of £643,513 expended since the formation of the company. At the year-end, outstanding commitments for capital expenditure totalled £175,594. Owing to increased activity, the company had to maintain larger stocks than in previous years, and trade debtors showed a slight increase over the previous year, which necessitated a rise in loans from the bank. The opportunity arose during the year to purchase part of the minority interest in the subsidiary company, B. Thornton, Ltd., and the group now owns over 97% of the issued ordinary share capital of this subsidiary. An increase in shares in subsidiary companies was due to the shares acquired in B. Thornton, Ltd., and also to the formation of the Holset Engineering Co., Ltd., formerly a department of W. C. Holmes & Co., Ltd. This new company made excellent progress; the past year showed an increase in sales and profit.

R. H. NEAL & CO.

R. H. Neal and Co., Ltd., manufacturers and dealers in contractors' plant, announce a final dividend of 7½%, less tax, for the year ended March 31, 1953. An interim of 7½% has already been paid. For the previous year a total of 15% was paid. Group profit for the year is £132,566, against £86,468 previously. This was struck before tax of £84,192 (£45,172). The amount retained by the subsidiary is £1,717 (£3,047). There is an increase in the carry-forward at £36,607 compared with £29,914.

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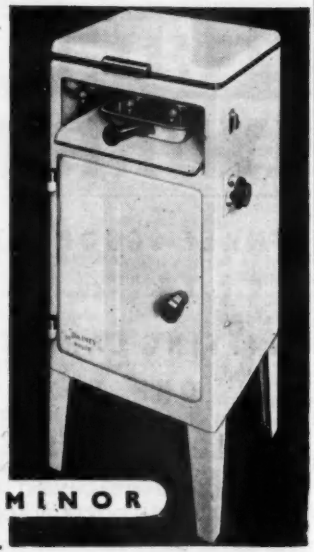

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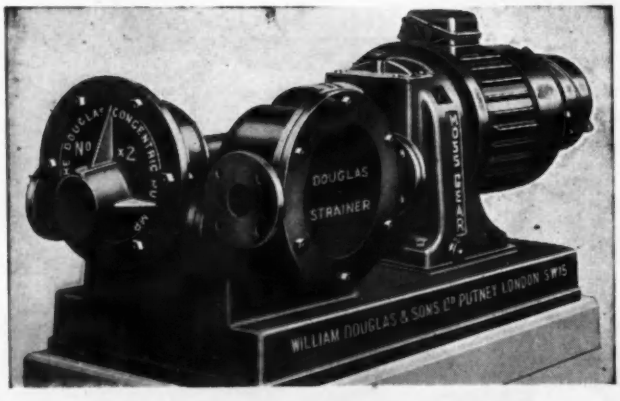

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APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18–64 inclusive or a woman aged 18–59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

DESIGNER with experience of engineering drawing required by Company manufacturing domestic gas appliances in the North West. Must be capable of taking control of Drawing Office and Experimental Shop. Knowledge of press tools and welded construction suitable for vitreous enamelling essential. Position calls for initiative and drive with a flair for new ideas. Good prospects for the right man. Write in confidence stating age, training, experience and salary required, to: No. 163, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

NORTH WESTERN GAS BOARD

FYLDE GROUP

SALESMAN-IN-CHARGE—

LYTHAM ST. ANNES SHOWROOMS

APPLICATIONS are invited for the above pensionable appointment at a salary within Grade A.P.T. VI (£490-£570 per annum).

Applicants must have had training and experience in the control of Showroom Staffs and be experienced in Showroom and window display work and in Gas Sales and Service. Preference will be given to candidates holding the Institution of Gas Engineers' Certificate in Gas Salesmanship and Consumer Service.

Detailed applications, giving the names of two referees should reach the General Manager, North Western Gas Board (Fylde Group), Princess Street, Blackpool, within fourteen days.

EAST MIDLANDS GAS BOARD

LEICESTER AND NORTHANTS DIVISION

DRAUGHTSMAN

APPLICATIONS are invited for the position of DRAUGHTSMAN in the Divisional Headquarters at Leicester. Grading and salary within the range A.P.T. VI-VIII (£490-£665) commensurate with qualifications and experience.

Preference will be given to candidates possessing a recognised engineering qualification and having specialised experience in either installation drawings for gas works, chemical works or similar plant; pipe work installation drawings; reinforced concrete design; or standard steelwork design.

The successful candidate may be required to pass a medical examination, and unless already subject to a pension scheme by virtue of the Gas (Pension Rights) Regulations 1950, will be required, if eligible, to join the Board's Staff Pension Scheme within six months from taking up the appointment.

Applications stating age, qualifications, present position and experience, and giving the names of two referees, should reach the undersigned not later than Monday, September 28, 1953.

H. B. TAYLOR,
Divisional General Manager.

Millstone Lane,
Leicester.
September 1, 1953.

(Classified advertisements continued on page 670)

APPOINTMENTS VACANT (ctd.)

OPERATORS required for Intermittent Chambers and Horizontals, knowledge of Gasworks tests an advantage. All applications in confidence to W. J. Jenkins & Co., Ltd., Beehive Works, Retford, Notts.

EXECUTIVE ENGINEER required with good experience in the construction of Coal Carbonising and Coke Oven Plant. Age about 40. The position and prospects are good. Apply: No. 161, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

SALES REPRESENTATIVE required for North Midlands and North by old established company of appliance manufacturers. The position can be permanent, progressive and pensionable. Remuneration will be by salary and commission and full expenses will be met. Applicants, who must be car owners, are invited to submit fullest details which will be treated in strict confidence. Apply: No. 162, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

WANTED by a well known Manufacturer of Gas Cooking and Heating Appliances, Technician, laboratory trained, and experienced in the development and testing to British Standards of efficiency, gas cookers and space heaters: to take charge of development and experimental work. State age, qualifications, previous experience and salary required. Apply: No. 164, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

THE Solid Smokeless Fuels Federation, representing the British Coking Industry Association, the Gas Council, the Low Temperature Coal Distillers Association, and the National Coal Board (South Western Division), invite applications for the post of TECHNICAL MANAGER. The qualifications needed for this post are technical knowledge of the use of solid smokeless fuels in domestic and industrial appliances and ability to negotiate with local authorities, Government departments and national fuel organisations, and to foster the use of solid smokeless fuels generally. The salary will be £1,200-£1,500 per annum according to qualifications.

The Federation also invite applications for the post of SECRETARY at a salary of £700-£800 per annum according to qualificatons.

Applications should be made in writing to the Chairman, Solid Smokeless Fuels Federation, 1 Grosvenor Place, London, S.W.1. Envelopes should be marked "Posts."

SCOTTISH GAS BOARD

WESTERN GROUP

SALTCOATS DISTRICT

APPLICATIONS are invited from suitably qualified persons for the position of MANAGER of above District.

Applicants, who must be Corporate Members of the Institution of Gas Engineers, should have wide experience in the control, operation and administration of a medium sized Gas Works.

The Salary will be on Scale Prov. 'B' XII (£725-£850), with placing according to qualifications and experience, plus free house, coal and gas.

The successful applicant may require to pass a medical examination and will be required to join the Board's Pension Scheme.

Applications, endorsed "District Manager—Saltcoats," stating age, training, qualifications and experience, together with the names of two referees, should reach the undersigned on or before Saturday, September 19, 1953.

ALEX. JAMIESON,
Group Manager.

Inchgreen Gas Works,
Greenock.

PATENTS

THE Proprietors of British Patent No. 638647 are prepared to sell the Patent or to license British manufacturers to work thereunder. It relates to "Improvements in or relating to perforated tubular gas-burners."—Address: Boult Wade & Tennant, 112 Hatton Garden, London, E.C.1.

KINGS PATENT AGENCY, LTD.

(Director, B. T. King, A.I.Mech.E., Patent Agent.) Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone: City 6161.

EDUCATIONAL

TRAINING IN FUEL TECHNOLOGY. Home Study Courses for the City and Guilds of London Institute Examinations in Scientific Principles of Fuel Technology (Intermediate) and in Solid and Gaseous Fuels (Advanced Grade) under the new Education Scheme of the Institute of Fuel have been arranged by the College of Fuel Technology, 90 Talbot Road, Highgate, London, N.6. Courses for the new Boiler Operators Certificate and in Boiler House Practice (both Grades) and Gas Technology are also available.

Principal: ARTHUR COE, F.INST.F.

Prospectus on application.

CONTRACTS OPEN

WALES GAS BOARD

PORT TALBOT UNDERTAKING

TENDERS ARE INVITED for the supply and delivery of 24 in. Cast Iron specials in connection with new Purification plant at the Aberavon Gasworks of the Port Talbot Undertaking.

Full details, together with Specification and General Conditions of Contract may be obtained on application to W. D. Rees, Esq., M.Inst.Gas E., Engineer, Port Talbot Undertaking.

Tenders to be enclosed in plain, sealed envelopes endorsed "Purification Plant," addressed to the undersigned, and to be delivered not later than Monday, October 5, 1953.

The Board does not bind itself to accept the lowest or any tender.

W. F. EDWARDS, F.C.I.S.,
ASSOC. INST. GAS E.,
General Manager & Secretary.

Port Talbot Gas Undertaking,
18, Station Road,
Port Talbot, Glam.

WALES GAS BOARD

PORT TALBOT UNDERTAKING

TENDERS ARE INVITED from experienced Contractors for the supply, delivery and erection at the Aberavon Works of the above Undertaking, of the following Purification plant:—

(*a*) 2 sets, each of 5 elevated reinforced concrete Purifiers, each purifier being 35 ft. × 35 ft. × 9 ft., together with the necessary piled foundations and supporting structure.

(*b*) 20 Steel covers, each approximately 30 ft. × 13 ft. 6 in., for the purifiers referred to in (*a*).

(*c*) Suitable Oxide Handling Plant, incorporating lifting equipment for the covers referred to in (*b*).

Specification and General Conditions of Contract may be obtained on application to W. D. Rees, Esq., M. Inst. Gas E., Engineer, Port Talbot Undertaking.

Tenders to be enclosed in plain, sealed, envelopes endorsed "Purification Plant," addressed to the undersigned, and to be delivered not later than Monday, October 5, 1953.

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W. F. EDWARDS, F.C.I.S.,
ASSOC. INST. GAS E.,
General Manager & Secretary.

Port Talbot Gas Undertaking,
18, Station Road,
Port Talbot, Glam.

FOR SALE

FOR SALE—One—24 in. WECK VALVE, 4 w C.I. Construction, packed discs. Condition as to new. May be inspected at: Newton, Chambers Co., Ltd., Heavy Construction Division, Thorncl near Sheffield.

MISCELLANEOUS

THE REPLY IS IN THE NEGATIVE

THESE DAYS, a sound investment is someth to write home about. What we write of her not a new discovery, for it has long been at the disp of industry. The point is that only the alert are u it to their full advantage. We refer to the help afford to administration by a FULL PHOTOGRAPH RECORD of constructional jobs from foundation completed building, from rough casting to finis product. Nothing escapes the eye of the cam No other recorder covers such a wide field. A p gressive file of photographs taken at regular, speci intervals, is an ever-present aid to the busy execu It can be referred to at once in case of any point w may arise during the construction of plant or the ma of a product. It shows progress at a glance unmis ably and eliminates the cause of wrangling and argum

Walter King Photographs are specially staffed equipped for this type of work and are prepared tour the Midlands, Southern Counties, and H Counties

Details of this photographic service on reques Walter King, Ltd., 11, Bolt Court, Fleet Street, Lond E.C.4.

THE BRITISH GAS PURIFYI MATERIALS CO., LTD.

NATURAL BRITISH.

BOG (DUTCH and DANISH) ORE.

SPENT OXIDE.

LONDON ROAD, LEICESTER.

Telegrams: "BRIPURIMAT"
Telephone: 59086

BUFFALO INJECTORS

Class A

For hot or cold feed water and steam pres sures up to 200 lbs

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LONDON, E.8

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ALBION. WEST BROMWICH

S.B

IRON & STEE
PLATES &
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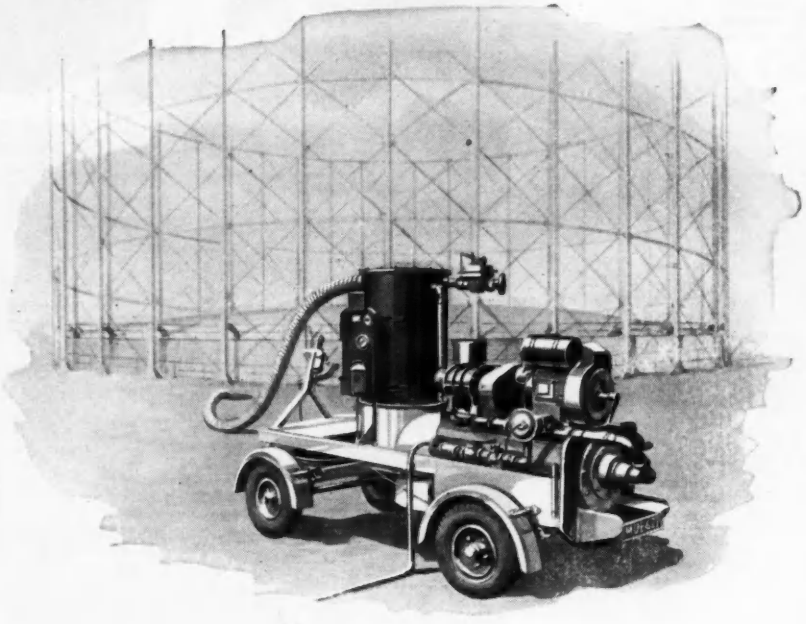
Telephone:
WEST BROMWICH 04 36



INERT GAS GENERATORS

THESE machines were first introduced into this country in 1934, to meet the need for purging Gas Works plant and mains. Such a procedure has become increasingly recognised by the Industry as a desirable safety measure prior to repair work and to routine purifier operations.

Two types are available, one for oil firing and the other for gas firing and either can be supplied as a static or mobile unit.

W. C. HOLMES & CO. LTD.

HUDDERSFIELD · LONDON · BIRMINGHAM

Tel: Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

HOLMES HUDDERSFIELD

C 406

we serve to burn

"Fishtail" type burner *with two-armed stamped pattern injector for heating liquid in tanks by submerged horizontal combustion tubes. For use with low pressure gas supplies.*
Size Range: *1", 1¼", 1½", 2" and 2½" outlets.*
Capacity Range: *45-280 cu. ft. of gas per hour.*

Note.—These four burner heads are for high pressure gas or low pressure gas and air blast.

Brass non-blow-off head types: *deal with 5 to 10 cu. ft. of gas per hour.*

Stainless steel, "F" type head, burner: *deals with 8 cu. ft. of gas per hour.*

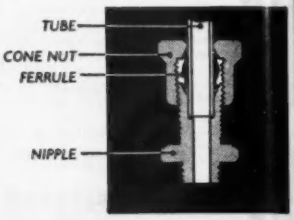
Perforated head type burner: *deals with 10 or 15 cu. ft. of gas per hour.*

Type 2 Mixture Controller, *for controlling quality of air/gas mixture irrespective of varying pressures and resistances. Temperature control is varied by manipulation of the air cock only.*
Capacity Range: *from 130 to 1380 cu. ft. of gas per hour according to air pressure (½ lb. to 1lb.) and size. For low pressure gas systems.*
Air Inlets: *1", 1½", 1¼" and 2" diameters gas thread.*

INDUSTRIAL GAS EQUIPMENT

DID YOU KNOW?

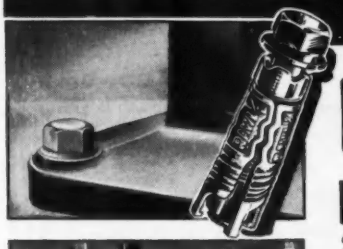
KEITH BLACKMAN have been making compression joints for many years and the present design embodies features developed as a result of this long experience. Notice that the shape of the ferrule is such that the joint is made without unduly stressing the tube.

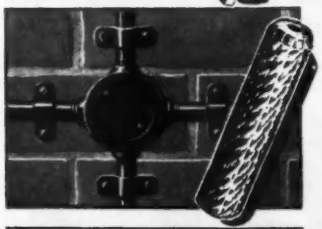


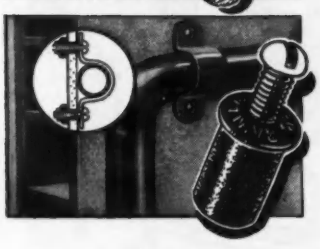
Keith Blackman LIMITED
MILL MEAD ROAD, TOTTENHAM, LONDON, N.17
Phone: Tottenham 4522 (twelve lines) "Grams: "Keithblac, Norphone, London."
BRANCH OFFICES: AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

510

HAVE YOU A *FIXING PROBLEM?*

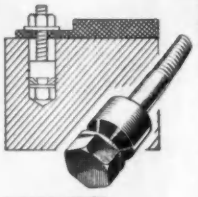




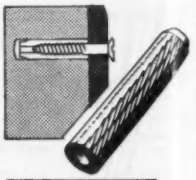


RAWLPLUGS HAVE THE ANSWER

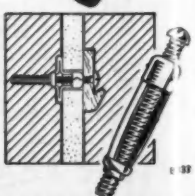
HEAVY FIXINGS Rawlplug expansion-grip bolt fixings *(no grouting, no waiting for cement to dry)* save so enormously in time and energy that they have superseded obsolete methods of bolting down machines and plant. Rawlbolts (left) — up to 1" diam. — and Rawlplug Bolt Anchors (right) — up to 1½" diam. — require only minimum size holes, which are quickly drilled with special Rawlplug tools.



SCREW FIXINGS For every type of screw fixing in hard materials the famous Rawlplug is several times faster than any other method. You make neat holes, exact to size, with a Rawldrill or Durium (rotary) drill; insert a Rawlplug and turn home the screw. It's easy and straightforward —no mess, no 'making good' damage afterwards!



CAVITY FIXINGS Wherever the back of material is inaccessible, as in cavity bricks, wall boards, etc. Rawlplug Cavity Fixings overcome all difficulties. Left is the Rawlnut, which forms its own rivet head at the back as you tighten in front! Right is the Rawlanchor, which makes possible permanent tapped fixings in thin and hollow materials.



If you have a fixing problem, write full details to our Technical Dept. who will be delighted to advise you free.

THE RAWLPLUG COMPANY LIMITED · CROMWELL ROAD · LONDON · SW7

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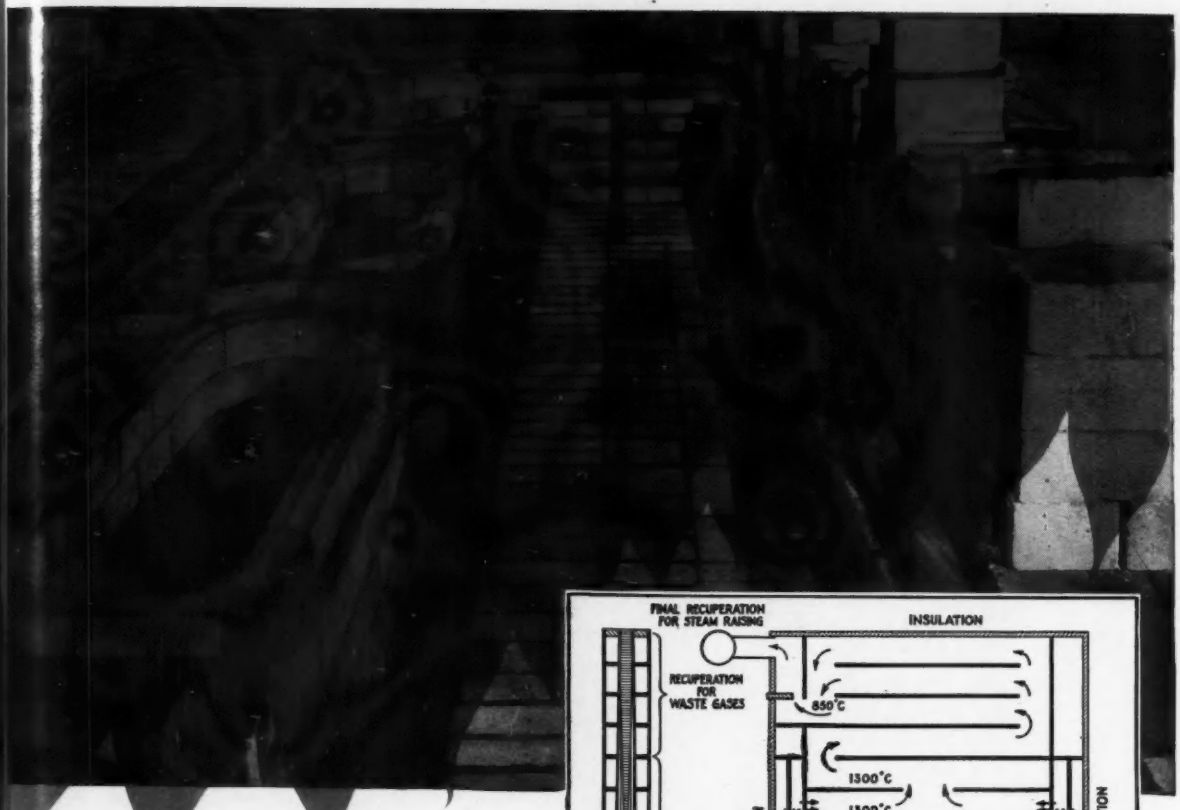
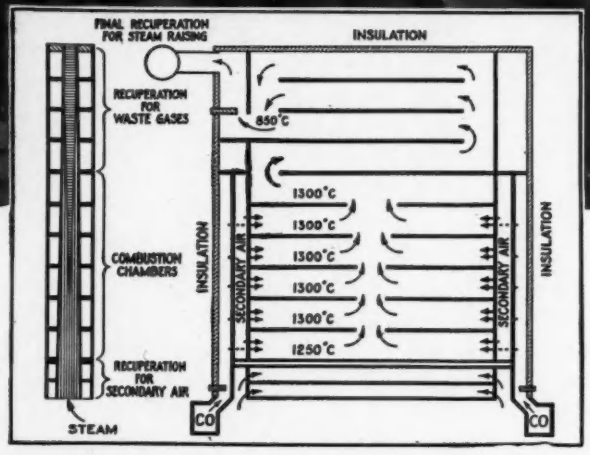
"Balanced Heating"

MEANS ECONOMICAL GAS—MAKING





Great reductions in the amount of fuel required for the carbonization process have been recorded in the "Balanced Heated" settings of the Glover-West continuous vertical system.

This is due to two main factors. The retorts are heated by *primary* combustion of producer gas which enters the combustion chambers at *both* sides of the setting. Even heating of the retorts ensures maximum utilization of heat and eliminates high local temperatures and fuel wastage.

In addition, improved control of individual combustion chamber temperatures ensures maximum gas production from all coals.

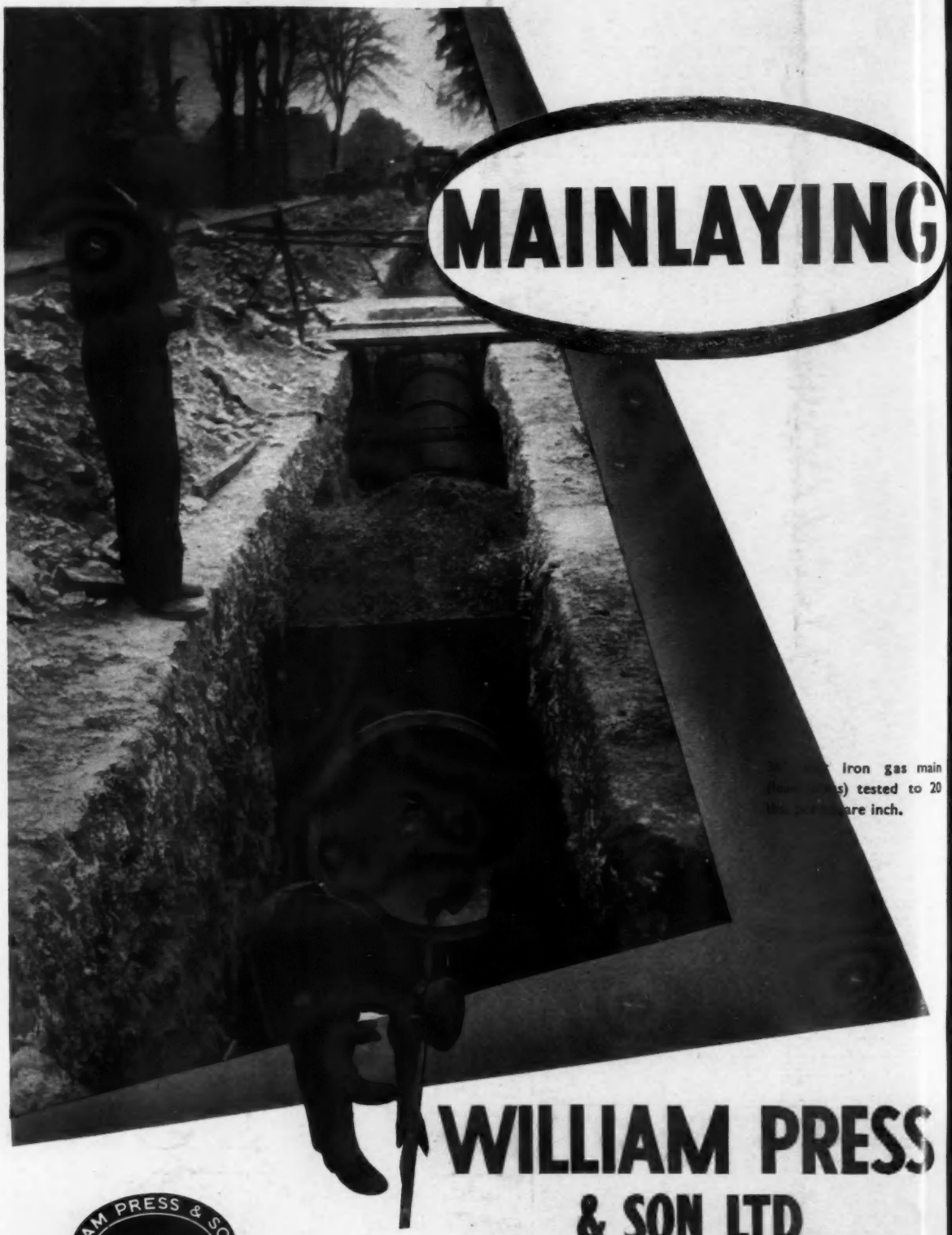
Illustration shows a "Balanced Heated" setting under construction.

West's Gas IMPROVEMENT CO. LTD.

ALBION IRONWORKS · MILES PLATTING · MANCHESTER 10

Telephone: COLlyhurst 2961. Telegrams: Stoker, Manchester.

London Office: Columbia House, Aldwych, W.C.2. Phone: HOLborn 4108-9 Grams: Wesgasco, Estrand.



MAINLAYING

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s) tested to 20
are inch.

WILLIAM PRESS & SON LTD. MAINLAYING

WILLIAM PRESS & SON LTD.

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Telephone: TOTtenham 8171-6 Telegrams: Unwater, Southtot, London